SERVICE MANUAL

PARTS LIST

PRIDE IN QUALITY

AKAI STEREO TAPE RECORDER

MODEL GX-1820

ALSO APPLICABLE TO MODEL GX-1820D

STEREO TAPE RECORDER

MODEL GX-1820

ALSO APPLICABLE TO MODEL GX-1820D
STEREO TAPE DECK

SECTION 1 SERVICE MANUAL 3
SECTION 2 PARTS LIST 35
SECTION 3 SCHEMATIC DIAGRAM 71

SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

I. **SPECIFICATIONS** 4
II. **MEASURING METHOD** 6
  1. TAPE SPEED DEVIATION 6
  2. WOW AND FLUTTER 6
  3. FREQUENCY RESPONSE 6
  4. SIGNAL TO NOISE RATIO 6
  5. TOTAL HARMONIC DISTORTION 7
  6. CROSS TALK 7
  7. ERASE RATIO 7
  8. POWER OUTPUT 7
III. **DISMANTLING OF UNIT** 8
IV. **TRANSPORT MECHANISM** 10
  1. FORWARD PLAYBACK/RECORDING MODE 11
  2. FAST FORWARD/REWIND MODE 11
  3. MOTOR OPERATION BLOCK DIAGRAM 11
  4. SYSTEM CONTROL BLOCK DIAGRAM 13
V. **MECHANISM ADJUSTMENTS** 16
  1. REEL TABLE HEIGHT ADJUSTMENT 17
  2. PINCH WHEEL PRESSURE MEASURING METHOD 17
  3. BRAKE TENSION ADJUSTMENT 18
  4. SUPPLY VOLTAGE AND TENSION AT VARIOUS OPERATING MODES . . . 18
  5. SHUT-OFF SWITCH LEVER POSITION ADJUSTMENT 18
  6. FLYWHEEL LOOSE PLAY ADJUSTMENT 19
  7. FLYWHEEL BELT POSITION ADJUSTMENT 19
VI. **OPEN REEL HEAD ADJUSTMENTS** 20
  1. HEAD HEIGHT ADJUSTMENT 20
  2. REC/P.B. HEAD AZIMUTH ALIGNMENT ADJUSTMENT 20
VII. **CARTRIDGE HEAD ADJUSTMENTS** 21
  1. HEAD ANGLE ADJUSTMENT 21
  2. HEAD HEIGHT AND CROSS TALK ADJUSTMENT 21
  3. CONFIRMATION OF HEAD HEIGHT 21
VIII. **AMP. SYSTEM ADJUSTMENTS** 22
  1. PLAYBACK LEVEL ADJUSTMENT 22
  2. OPEN REEL HIGH FREQUENCY DEVIATION CHECK 23
  3. CARTRIDGE PLAYBACK LEVEL CHECK 23
  4. CARTRIDGE HIGH FREQUENCY DEVIATION CHECK 23
  5. OPEN REEL RECORDING LEVEL ADJUSTMENT 23
  6. RECORDING BIAS ADJUSTMENT 23
  7. CARTRIDGE RECORDING LEVEL ADJUSTMENT 23
  8. RECORDING BIAS FREQUENCY MEASURING METHOD 24
  9. POWER AMP. IDLING CURRENT ADJUSTMENT 24
IX. **D.C. RESISTANCE OF EACH COIL** 25
X. **COMPOSITE VIEWS OF COMPONENTS** 26

I. SPECIFICATIONS

An asterisk next to a figure indicates the minimum guaranteed performance.

TRACK SYSTEM	Open Reel	4-track 2-channel stereo
	Cartridge	8-track 2-channel stereo
TAPE SPEED	Open Reel	7-1/2, 3-3/4 ips±0.8%
	Cartridge	3-3/4 ips±2%
WOW AND FLUTTER	Open Reel	Less than 0.08% (*0.12%) R.M.S. at 7-1/2 ips
		Less than 0.12% (*0.25%) R.M.S. at 3-3/4 ips
	Cartridge	Less than 0.20% (*0.35%) R.M.S.
FREQUENCY RESPONSE	Open Reel	30 to 24,000 Hz (*30 to 22,000 Hz) ±3 dB at 7-1/2 ips, using SRT tape
		30 to 22,000 Hz (*30 to 20,000 Hz) ±3 dB at 7-1/2 ips, using regular tape
		30 to 22,000 Hz (*30 to 18,000 Hz) ±3 dB at 3-3/4 ips, using SRT tape
		30 to 18,000 Hz (*30 to 16,000 Hz) ±3 dB at 3-3/4 ips, using regular tape
	Cartridge	50 to 16,000 Hz±3 dB
DISTORTION		Less than 1.5%
		*Less than 3% 1 kHz O VU recording, 4 dB line output
		*Less than 4% 1 kHz O VU recording, 3W speaker output at 8 Ω
		*Less than 6% 1 kHz O VU recording, 2 dB line output
OUTPUT	Speaker Output	5W x 2 at 8 Ω (GX-1820 only)
	Line Output	4 ± 1.5 dB at VR max.
	Din Output	4 ± 1.5 dB at VR max.
INPUT	Mic Input	0.5 mV
	Line Input	80 mV
	Din Input	40 mV
RECORDING PLAYBACK LEVEL	Open Reel	4 ± 2 dB
	Cartridge	2 ± 2 dB
SIGNAL TO NOISE RATIO	Open Reel	Better than 50 dB
		*Better than 47 dB at 7-1/2 ips
		*Better than 46 dB at 3-3/4 ips
		*Better than 44 dB at Reverse mode
	Cartridge	Better than 47 dB
		*Better than 41 dB
CROSS TALK	Open Reel	Better than 43 dB (*40 dB) Stereo
		Better than 70 dB (*60 dB) Monaural
	Cartridge	Better than 40 dB
ERASE RATIO	Open Reel	Better than 70 dB
	Cartridge	Better than 65 dB
RECORDING BIAS FREQUENCY		62.5 ± 5 kHz
BIAS LEAK		Less than –20 VU
HIGH FREQUENCY DEVIATION		
	Between Channels	±2 dB
	Between FWD/REV	±3 dB
REVERSING TIME		2 to 4 seconds
HUM AND NOISE		Less than 10 mV at VR min.
RECORDING CAPACITY	Open Reel	60 min. stereo recording, using a 1,200 ft. tape at 7-1/2 ips
	Cartridge	60 min. stereo recording, using a 300 ft. cartridge tape
F. FWD AND RWD TIME		80/65 sec., using a 1,200 ft. tape at 50/60 Hz
MOTORS	Capstan Motor	2 speed hysteresis, synchronous motor
		Type: HM2-16MC (winterized)
		4–8 pole
		Revolutions: 1,500/1,800 r.p.m. at 50/60 Hz
		750/900 r.p.m. at 50/60 Hz
	Reel Motor	Two 6-pole eddy current outer rotor motors
		Type: 24XO-MR
		Revolutions: 930/1,120 r.p.m. at 50/60 Hz

HEADS	Open Reel Erase Head	Type: E4-260 Gap: W gap Impedance: 210 Ω ±10% at 100 kHz D.C. Resistance: 4 Ω	
	Open Reel Recording/Playback Head	Type: P4-201 Gap: 1 micron Impedance: 1.1 kΩ at 1 kHz D.C. Resistance: 240 Ω	
	Cartridge Erase Head	Type: E8–1 Gap: 0.1mm Impedance: 210 Ω ±7% at 90 kHz D.C. Resistance: 4.5 Ω	
	Cartridge Recording/Playback Head	Type: P8–1 Gap: 2 microns Impedance: 750 Ω ±15% at 1 kHz D.C. Resistance: 110 Ω	
TRANSISTORS		2SC458LG (B) . . . 10	2SC1061 (B)(C) . . . 1
		2SC711 (E)(F) . . . 8	2SC1098 (L)(M) . . . 1
		2SC971 (2)(3) red . . . 2	
		Power Amp. Section (GX-1820 only)	
		2SC458 (C) . . . 2	2SC1060 (B)(C) . . . 4
		2SC968 (3)(4) . . . 2	
DIODES		1N34A . . . 5 (GX-1820)	10D4 . . . 1
		1N34A . . . 3 (GX-1820D)	10DC-1 (blk) . . . 1
		10D05 . . . 3	WG-599 . . . 9
		10D1 . . . 2	
ZENER DIODES		WZ240 . . . 1	RD9A . . . 2
THERMISTERS		19D46 . . . 2 (GX-1820 only)	
POWER SUPPLY		100 to 240V A.C. 50/60 Hz	
POWER CONSUMPTION		110W (GX-1820) 95W (GX-1820D)	
INSULATION RESISTANCE		More than 50 MΩ	
DIMENSIONS		435 (W) x 450 (H) x 240 (D) mm (17.4" x 18" x 9.6")	
WEIGHT		21.4 kg (47 lbs.) GX-1820 20.5 kg (45 lbs.) GX-1820D	

NOTE: Specifications subject to change without notice.

II. MEASURING METHOD

1. TAPE SPEED DEVIATION

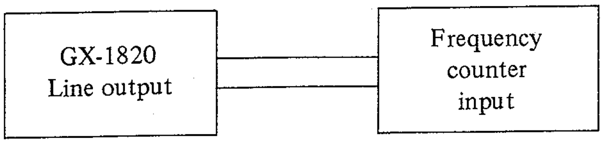

GX-1820
Line output
Frequency
counter
input

Fig. 1

As shown in Fig. 1, connect a Frequency Counter to the Line Output of Model GX-1820. Playback a 1,000 Hz pre-recorded test tape. Take a Frequency Counter reading at the beginning, middle, and end of tape winding during playback. The maximum value of these respective readings will represent tape speed deviation.

2. WOW AND FLUTTER

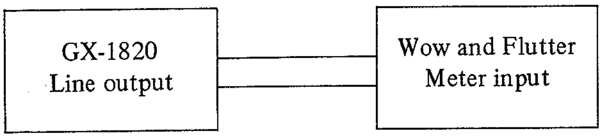

GX-1820
Line output
Wow and Flutter
Meter input

Fig. 2

Method A

As shown in Fig. 2, connect the Line Output of Model GX-1820 to the Input of a Wow and Flutter Meter. Playback a 3,000 Hz pre-recorded test tape and take a Wow and Flutter Meter reading at the beginning, middle, and end of tape winding. The maximum value of these respective readings will represent the Wow and Flutter.

Method B

Supply a 3,000 Hz sine wave signal from an Audio Frequency Oscillator and make a recording on a blank tape at the beginning, middle, and end of tape winding. Rewind and playback the resultant signal. Measure Wow and Flutter with a Wow and Flutter Meter. (The Wow and Flutter value of Method B will be close to twice that of Method A.)

3. FREQUENCY RESPONSE

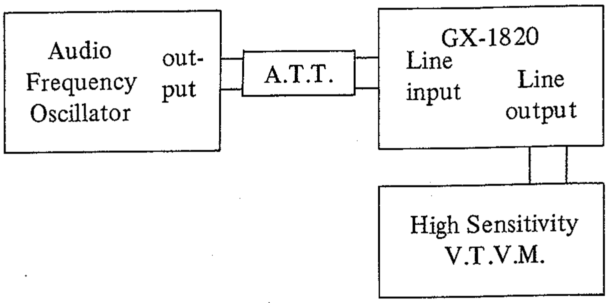

Audio
Frequency
Oscillator
out-
put
A.T.T.
GX-1820
Line
input
Line
output
High Sensitivity
V.T.V.M.

Fig. 3

For measuring Frequency Response, connect instruments as shown in Fig. 3 and proceed as follows:

1) Supply a 1,000 Hz sine wave signal to the Line Input of Model GX-1820 from an Audio Frequency Oscillator through an Attenuator.
2) Set recorder to recording mode and turn recording level control volume and line output level control volume to maximum. Adjust attenuator to obtain a +4 dB V.T.V.M. reading.
3) Under conditions described in 2) above, readjust attenuator so that the Line Output is –16 dB, and record 30 to 20,000 Hz spot frequencies.
4) Rewind tape and playback from the beginning. Take V.T.V.M. spot frequency readings and plot values on a graph.

NOTE: When measuring Frequency Response, new tape should be used.

4. SIGNAL TO NOISE RATIO

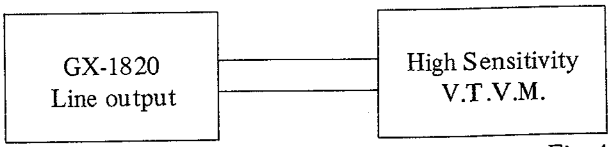

GX-1820
Line output
High Sensitivity
V.T.V.M.

Fig. 4

As shown in Fig. 4, connect a High Sensitivity V.T.V.M. to the Line output of Model GX-1820. Playback a 250 Hz "0" VU pre-recorded test tape and measure the output. Then remove the tape and measure the noise level under the same condition. Convert each of the measured values into decibels.

5. TOTAL HARMONIC DISTORTION

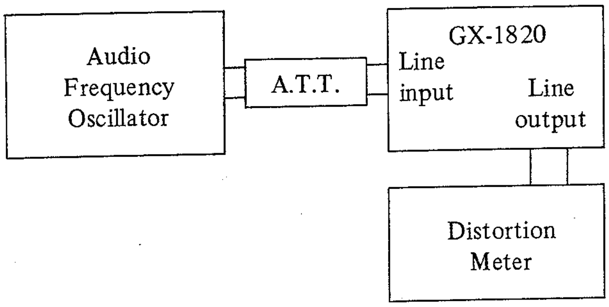


Fig. 5

Connect the measuring instruments as shown in Fig. 5 and record a 1,000 Hz sine wave signal at "0" VU. Playback the resultant signal and measure the overall distortion factor. Measure the noise level of the tape recorder without the tape. Connect the Audio Frequency Oscillator directly to the distortion meter for measurement of the distortion factor of the oscillator. The required distortion factor can be obtained from the results of the above measurement by the following formula:

$$d_0 = d - d_1 - d_2$$

where, d_0 = Required distortion factor
d = Overall distortion factor
d_1 = Noise level
d_2 = Distortion factor of the oscillator

NOTE: When measuring the distortion factor, new tape should be used.

6. CROSS TALK (Cross talk between the tracks)

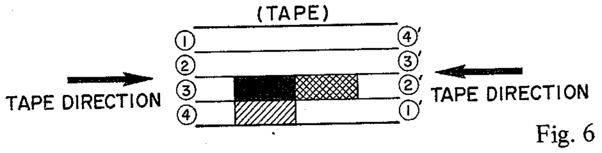


Fig. 6

As shown in Fig. 6, first record a 1,000 Hz sine wave signal on Track No. 3 at +3 VU level. Next, record under a non-input condition. Then, playback the tape on Tracks No. 3 and 1 (reversed condition of tape) through the B.P.F. (band pass filter sensitivity ... 1:1) and obtain a ratio between the two from the following formula:

$$C = 20 \log \frac{E_0}{E_2 - E_1} \quad \text{(dB)}$$

where, C = Desired cross talk ratio (dB)
E_0 = 1,000 Hz signal output level ■
E_2 = 1,000 Hz cross talk level ▨
E_1 = Non-input signal recorded level ▩

Fig. 7

7. ERASE RATIO

As shown in Fig. 3, connect a High Sensitivity V.T.V.M. to the Line Output of Model GX-1820. Playback a virgin tape and take a V.T.V.M. reading of the output level. Next, record a 1,000 Hz sine wave signal at +3 VU, then playback this recorded signal and take a V.T.V.M. reading of the output level. Next, using this pre-recorded tape, record under a non-input condition and take a reading of the noise output level of the erased signal and obtain a ratio between the two from the following formula:

$$E_r = 20 \log \frac{E_0}{E_2 - E_1} \quad \text{(dB)}$$

where, E_r = Desired erase ratio (dB)
E_0 = 1,000 Hz signal output level
E_2 = Non-input signal recorded level
E_1 = Virgin tape noise output level

8. POWER OUTPUT (GX-1820 only)

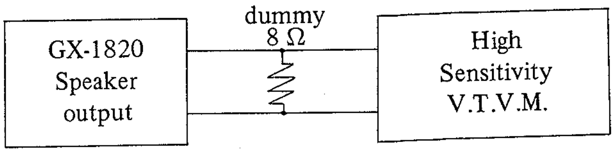


Fig. 8

As shown in Fig. 8, connect an 8Ω dummy load resistor to the speaker output and connect this terminal to a High Sensitivity V.T.V.M. Playback a 250 Hz "0" VU pre-recorded test tape and take a V.T.V.M. reading of the output level. The resultant output can be obtained from the above measurement by using the following formula:

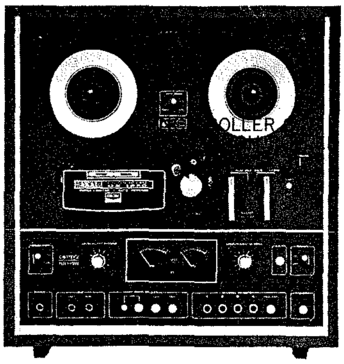
$$P = \frac{E^2}{R} \quad \text{(W)}$$

where, P = Desired power output (watts)
E = Measured voltage (R.M.S.)
$R = 8\ \Omega$

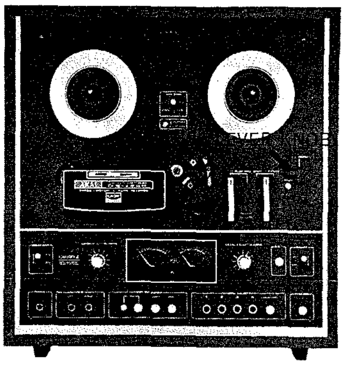
III. DISMANTLING OF UNIT

In case of trouble, etc. necessitating disassembly, please disassemble in the order shown in photographs. Reassemble in reverse order.

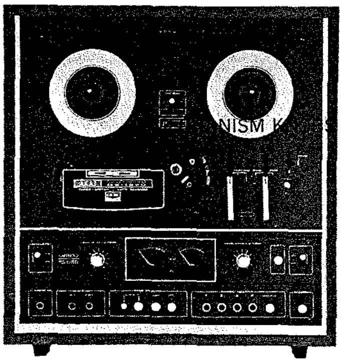
1



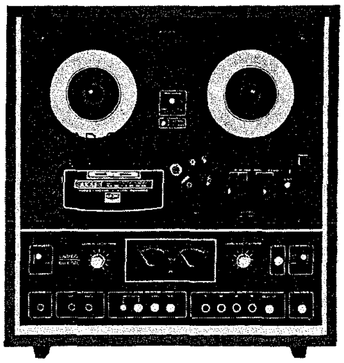
2



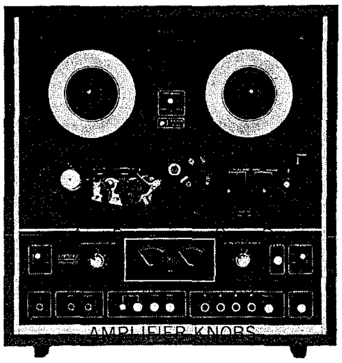
3



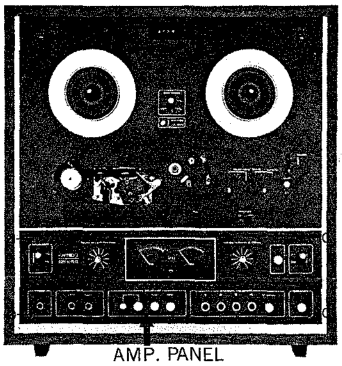
4



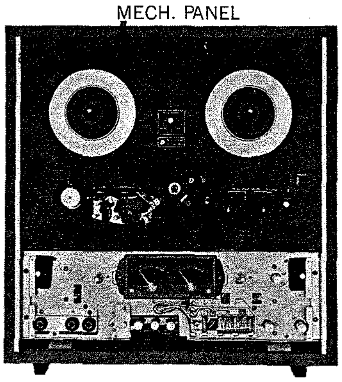
5


AMPLIFIER KNOBS

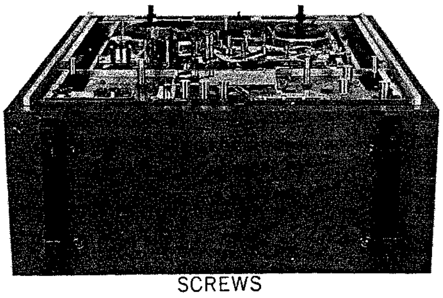
6



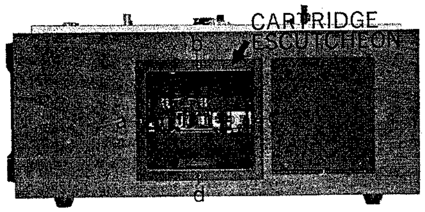
7



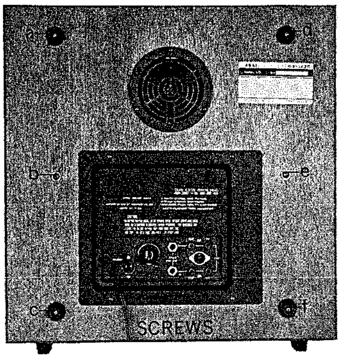
8



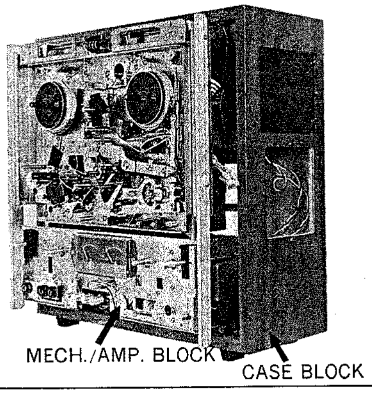
9


CARTRIDGE
ESCUTCHEON
b
a
d

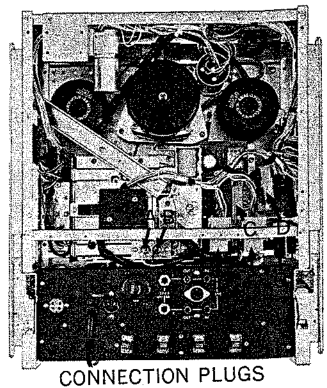
10


a
d
b
e
c
f
SCREWS

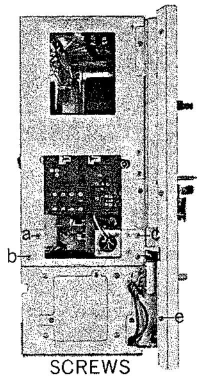
11


MECH./AMP. BLOCK
CASE BLOCK

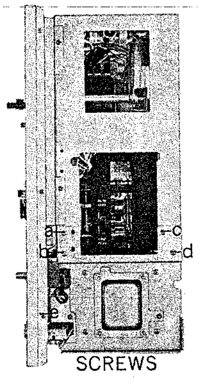
12


c
b
CONNECTION PLUGS

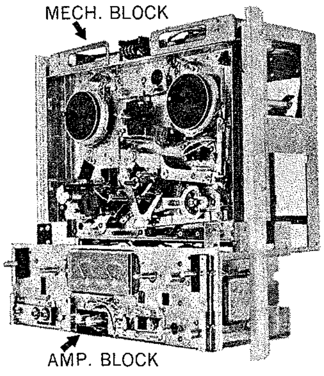
13


a
b
c
e
SCREWS

14


a
b
c
d
e
SCREWS

15


MECH. BLOCK
AMP. BLOCK

IV. TRANSPORT MECHANISM

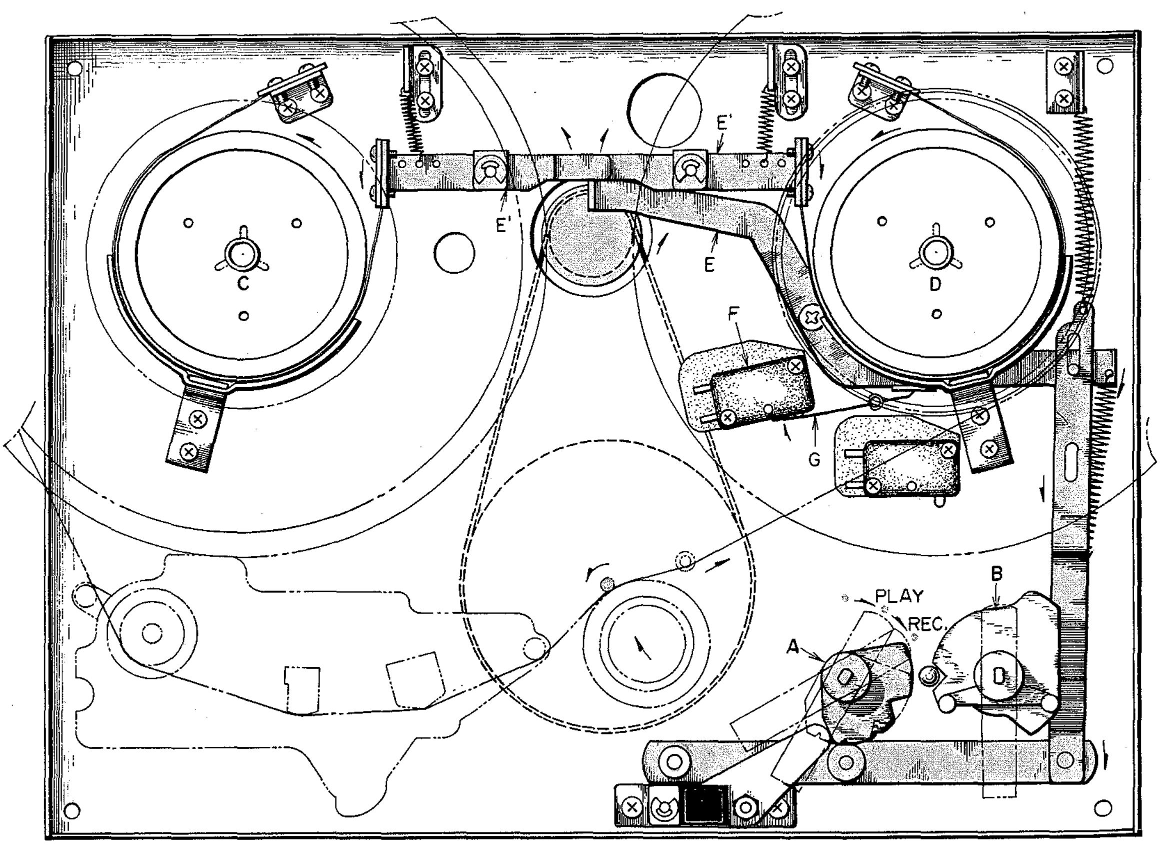

E'
E'
E
C
D
F
G
PLAY
REC
A
B

Fig. 9 FWD P.B./RECORDING REVERSE MODE

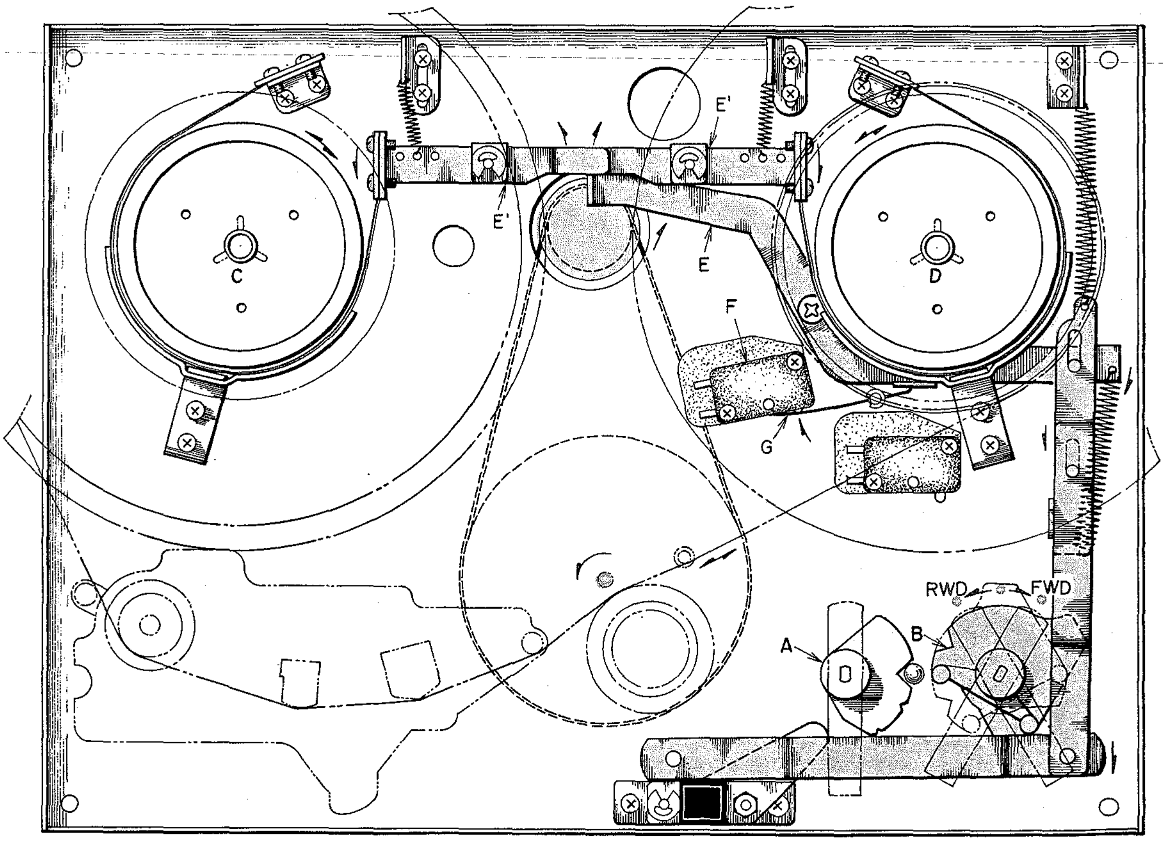

E'
E'
E
C
D
F
G
RWD
FWD
A
B

Fig. 10 F. FWD/RWD MODE

1. FORWARD PLAYBACK/RECORDING MODE (Refer to Fig. 9)

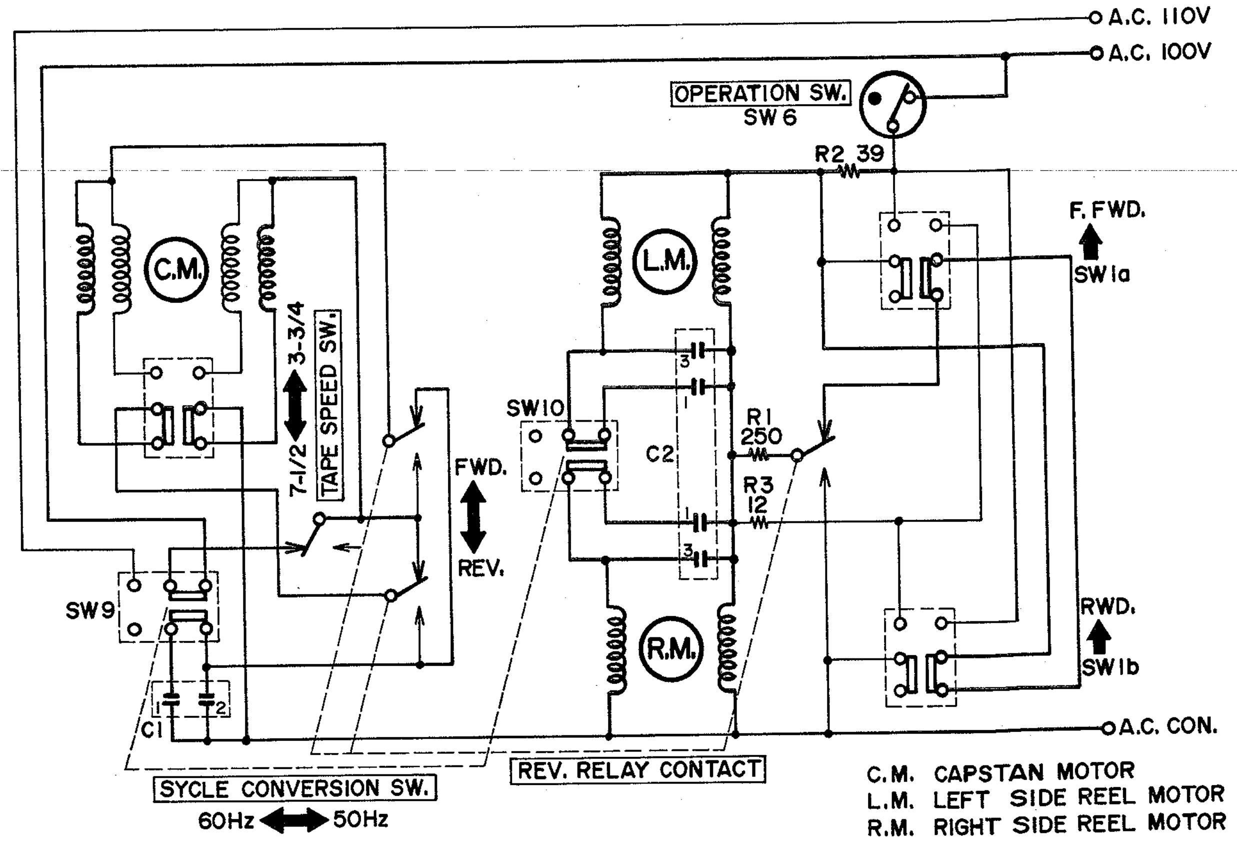
Setting Recording/Playback Lever (A) to playback position causes Brake Lever (E) to move in the direction of the arrow and release the brake of both torque motors, and at the same time, Operation Micro Switch (SW-6) is turned ON by Lever (G), and the torque motors begin to rotate in the direction of the arrows. Also the capstan contacts the pinch roller and the tape is transported at constant speed.

2. FAST FORWARD/REWIND MODE (Refer to Fig. 10)

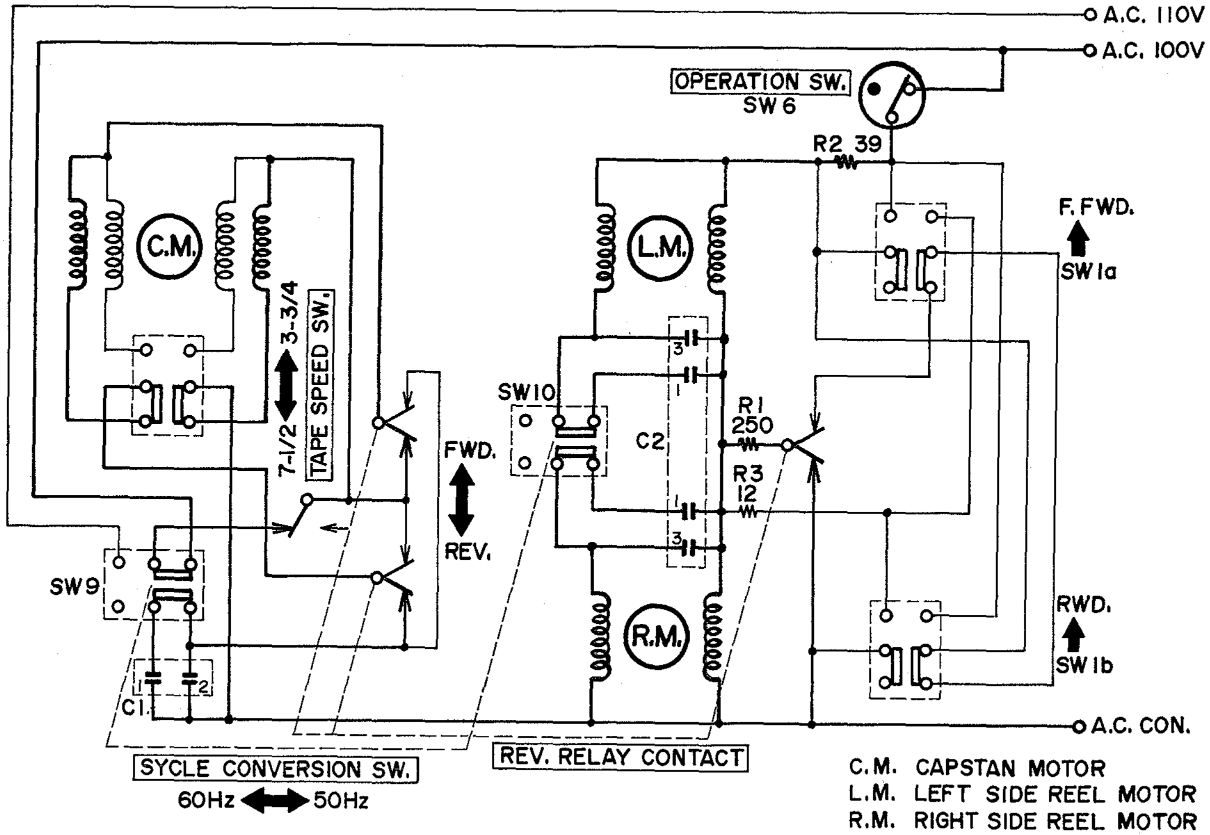
1) Setting Fast Forward/Rewind Lever (B) to Fast Forward or Rewind position causes Brake Lever (E) to move in the direction of the arrow, and release the brake of both torque motors, and at the same time, Operation Micro Switch (SW-6) is turned ON by Lever (G) and the torque motors begin to rotate in the direction of the arrows.
2) For Fast Forward or Rewind, the mechanical operation is the same, but the voltage supply is different at each mode.

3. MOTOR OPERATION BLOCK DIAGRAM

1) FWD P.B. MODE

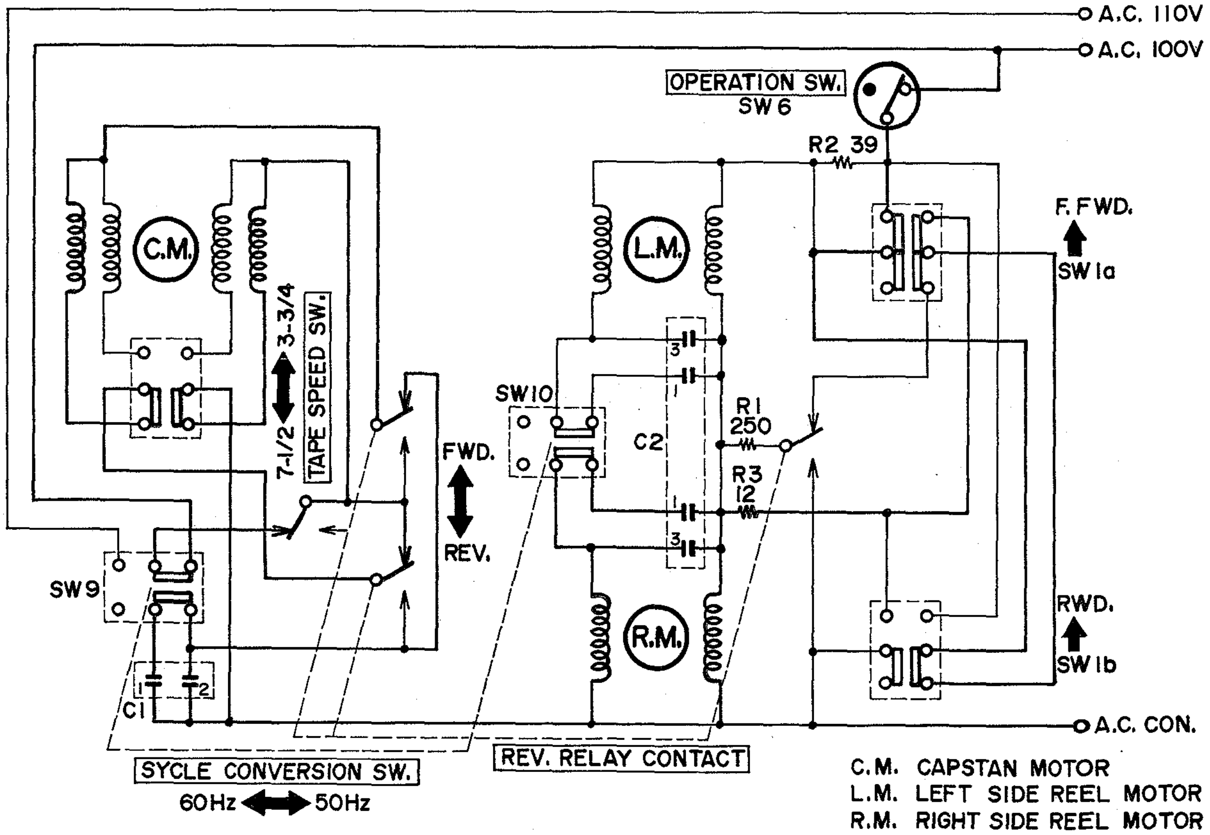

A.C. 110V
A.C. 100V
OPERATION SW.
SW 6
R2 39
F. FWD.
SW 1a
C.M.
L.M.
7-1/2 ⟷ 3-3/4
TAPE SPEED SW.
SW10
3
C2
R1
250
R3
12
FWD.
REV.
SW9
1
2
C1
R.M.
RWD.
SW 1b
A.C. CON.
SYCLE CONVERSION SW.
60Hz ⟷ 50Hz
REV. RELAY CONTACT
C.M. CAPSTAN MOTOR
L.M. LEFT SIDE REEL MOTOR
R.M. RIGHT SIDE REEL MOTOR

2) REV P.B. MODE


A.C. 110V
A.C. 100V
OPERATION SW.
SW 6
R2 39
F. FWD.
SW 1a
C.M.
L.M.
3-3/4
7-1/2
TAPE SPEED SW.
SW10
C2
R1
250
R3
12
FWD.
REV.
SW9
R.M.
RWD.
SW 1b
C1
A.C. CON.
SYCLE CONVERSION SW.
60Hz
50Hz
REV. RELAY CONTACT

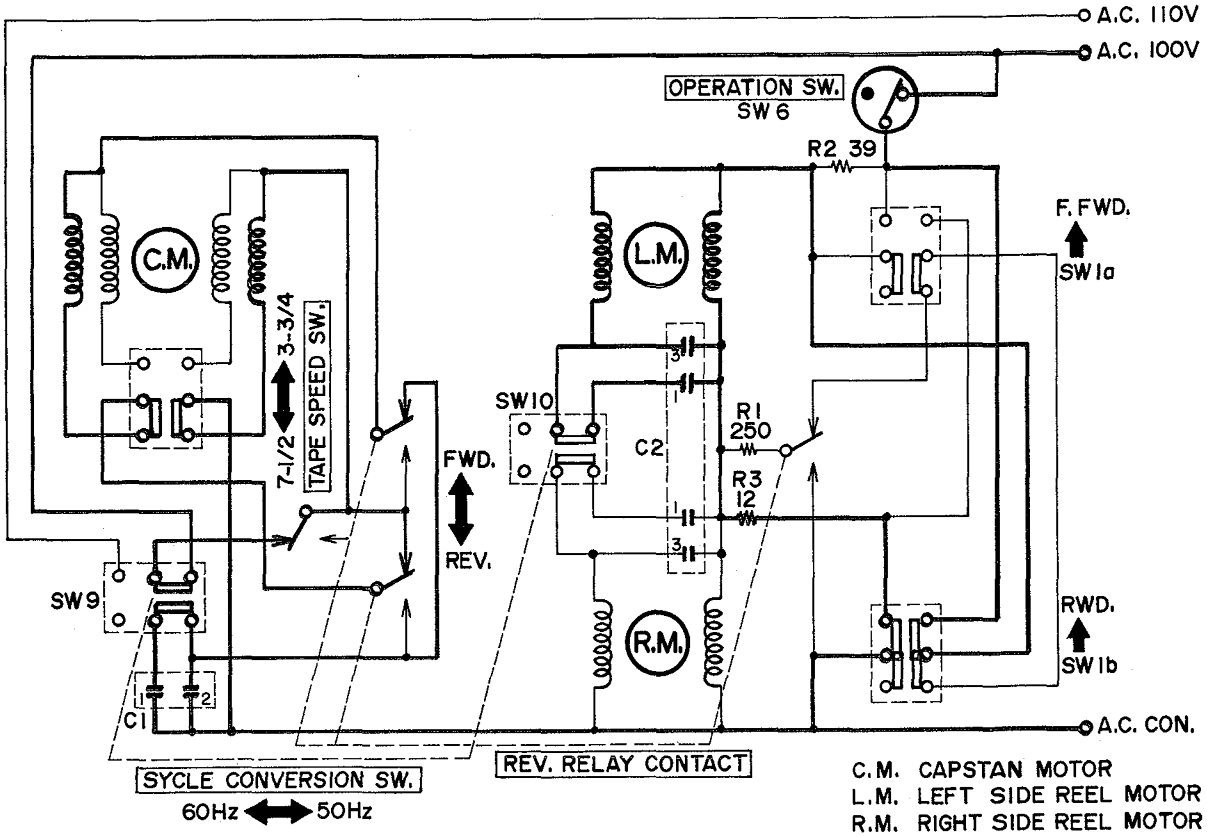
C.M. CAPSTAN MOTOR
L.M. LEFT SIDE REEL MOTOR
R.M. RIGHT SIDE REEL MOTOR

3) F. FWD MODE


A.C. 110V
A.C. 100V
OPERATION SW.
SW 6
R2 39
F. FWD.
SW 1a
C.M.
L.M.
3-3/4
7-1/2
TAPE SPEED SW.
SW10
C2
R1
250
R3
12
FWD.
REV.
SW9
R.M.
RWD.
SW 1b
C1
A.C. CON.
SYCLE CONVERSION SW.
60Hz
50Hz
REV. RELAY CONTACT

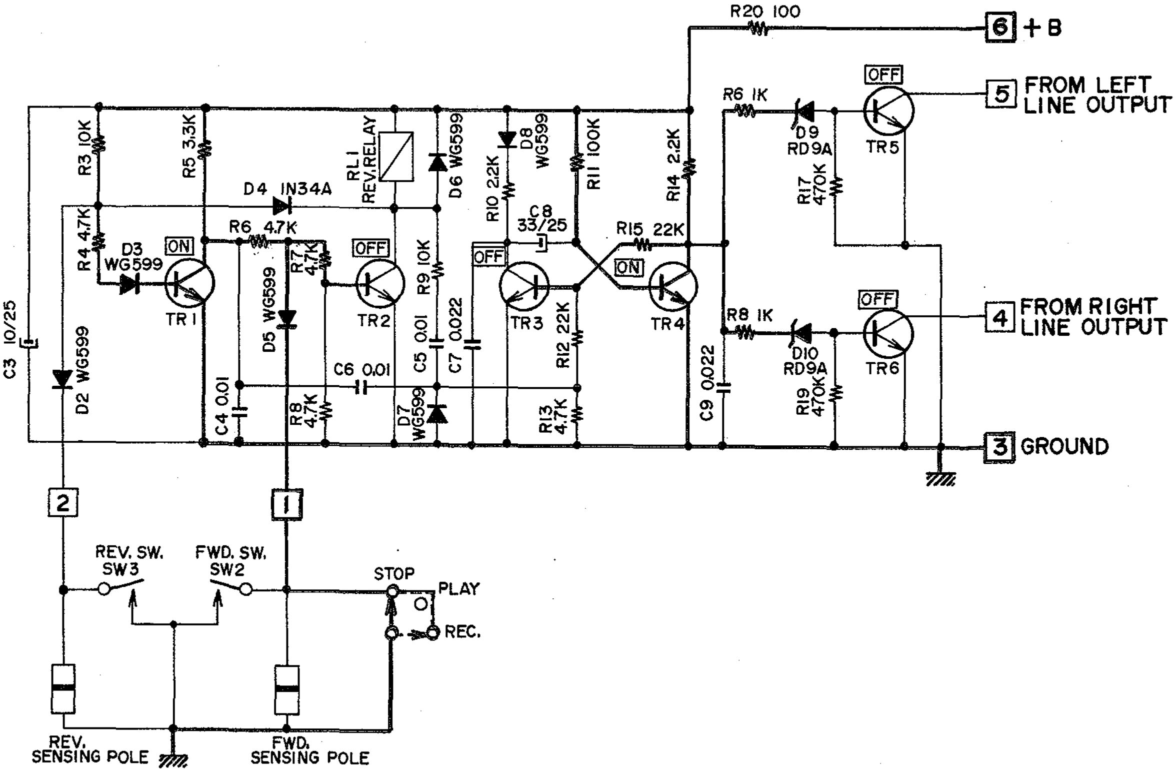
C.M. CAPSTAN MOTOR
L.M. LEFT SIDE REEL MOTOR
R.M. RIGHT SIDE REEL MOTOR

4) RWD MODE

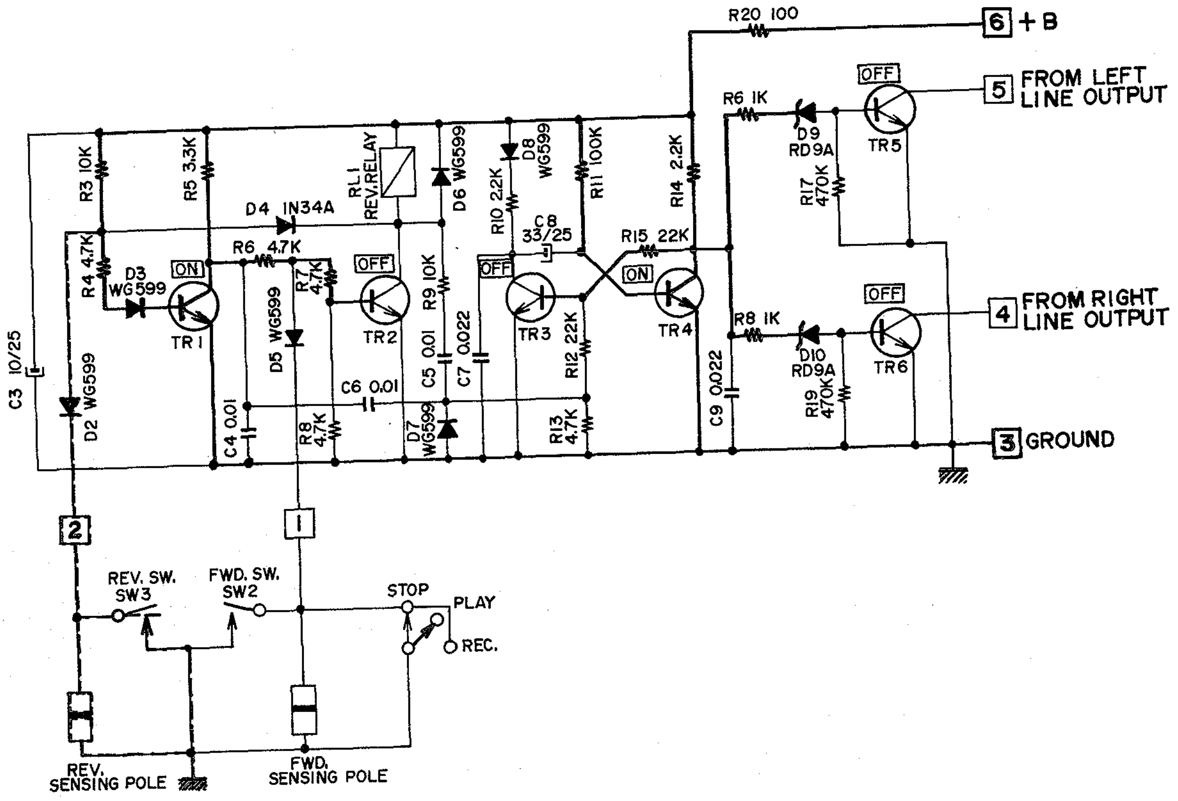

A.C. 110V
A.C. 100V
OPERATION SW.
SW 6
R2 39
F. FWD.
SW 1a
C.M.
L.M.
R.M.
3-3/4
7-1/2
TAPE SPEED SW.
SW10
C2
R1
250
R3
12
FWD.
REV.
SW9
C1
RWD.
SW 1b
A.C. CON.
SYCLE CONVERSION SW.
60Hz
50Hz
REV. RELAY CONTACT
C.M. CAPSTAN MOTOR
L.M. LEFT SIDE REEL MOTOR
R.M. RIGHT SIDE REEL MOTOR

4. SYSTEM CONTROL BLOCK DIAGRAM

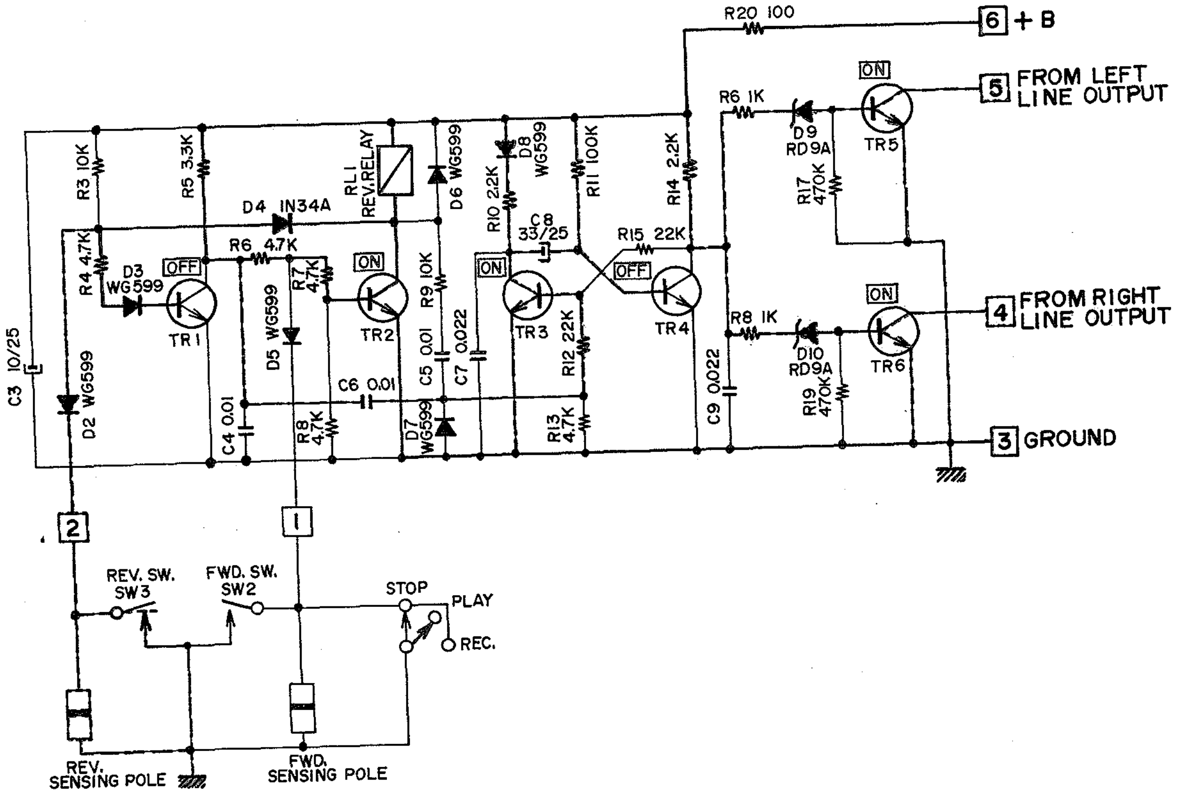
1) STOP AND REC. MODE


R20 100
6 +B
R6 1K
OFF
5 FROM LEFT LINE OUTPUT
D9
RD9A
TR5
R17 470K
R3 10K
R5 3.3K
RL1 REV.RELAY
D6 WG599
D8 WG599
R11 100K
R14 2.2K
R10 2.2K
D4 1N34A
C8 33/25
R15 22K
R4 4.7K
R6 4.7K
R7 4.7K
D3 WG599
ON
OFF
OFF
ON
R9 10K
TR1
TR2
TR3
TR4
R8 1K
OFF
4 FROM RIGHT LINE OUTPUT
C3 10/25
D5 WG599
C5 0.01
C7 0.022
R12 22K
D10
RD9A
TR6
D2 WG599
C6 0.01
C9 0.022
R19 470K
C4 0.01
R8 4.7K
D7 WG599
R13 4.7K
3 GROUND
2
1
REV. SW. SW3
FWD. SW. SW2
STOP
PLAY
REC.
REV. SENSING POLE
FWD. SENSING POLE

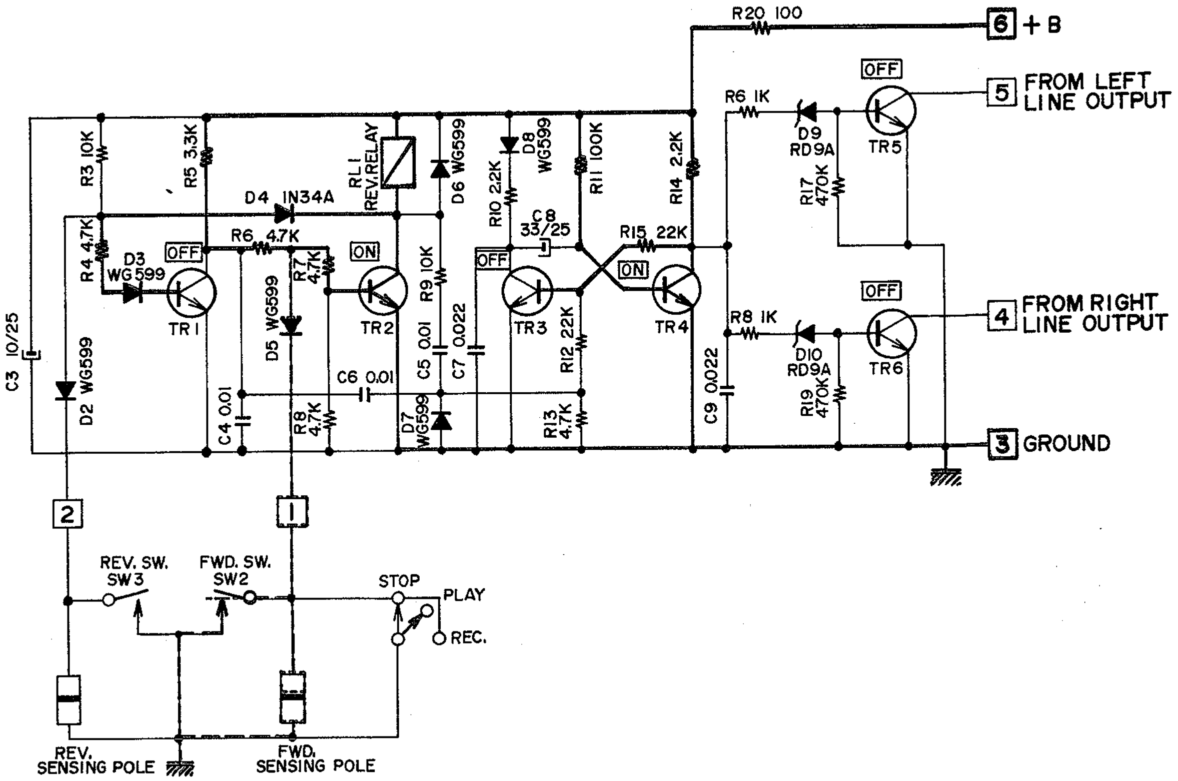
2) FWD P.B. MODE


R20 100
6 +B
OFF
5 FROM LEFT LINE OUTPUT
R6 1K
D9 RD9A
TR5
R3 10K
R5 3.3K
RL1 REV.RELAY
D6 WG599
R10 2.2K
D8 WG599
R11 100K
R14 2.2K
R17 470K
D4 1N34A
C8 33/25
R15 22K
R4 4.7K
R6 4.7K
ON
D3 WG599
TR1
R7 4.7K
OFF
TR2
R9 10K
OFF
TR3
ON
TR4
R8 1K
D10 RD9A
OFF
TR6
4 FROM RIGHT LINE OUTPUT
C3 10/25
D2 WG599
D5 WG599
C5 0.01
C7 0.022
R12 22K
C9 0.022
R19 470K
C6 0.01
C4 0.01
R8 4.7K
D7 WG599
R13 4.7K
3 GROUND
2
1
REV. SW. SW3
FWD. SW. SW2
STOP
PLAY
REC.
REV. SENSING POLE
FWD. SENSING POLE

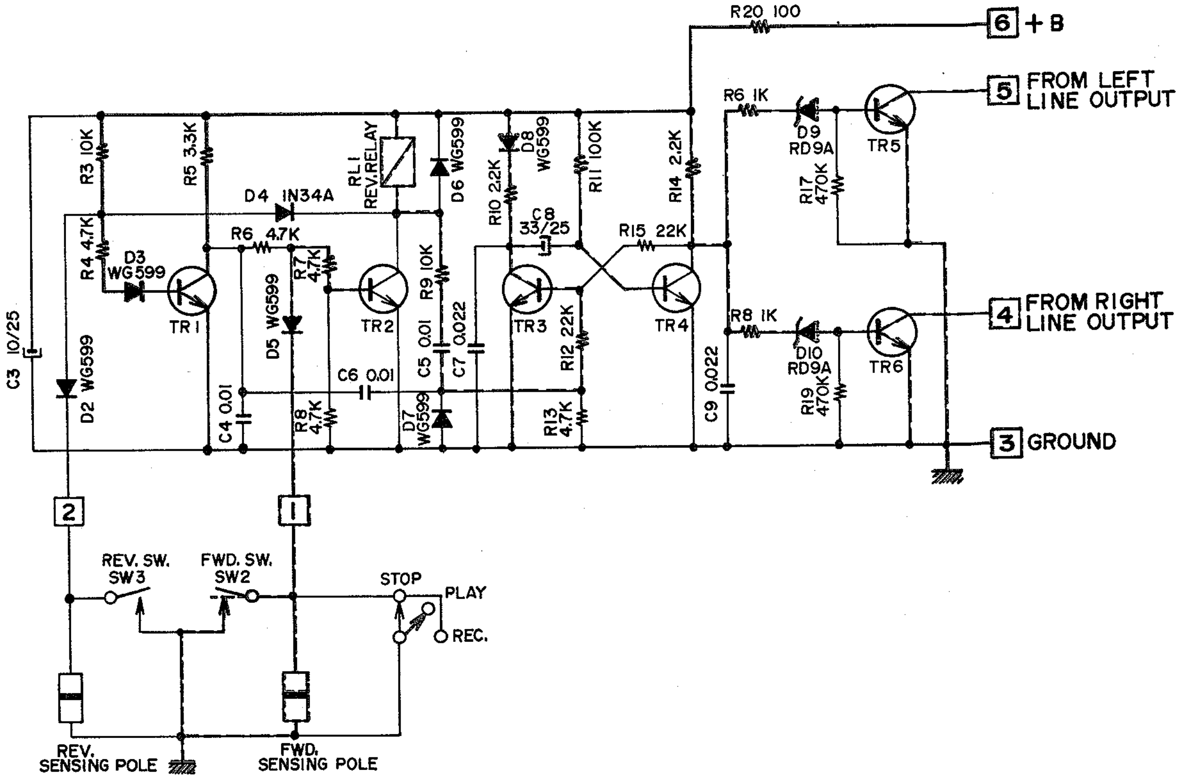
3) FWD P.B. TO REV P.B. MODE


R20 100
6 +B
ON
5 FROM LEFT LINE OUTPUT
R6 1K
D9 RD9A
TR5
R3 10K
R5 3.3K
RL1 REV.RELAY
D6 WG599
R10 2.2K
D8 WG599
R11 100K
R14 2.2K
R17 470K
D4 1N34A
C8 33/25
R15 22K
R4 4.7K
R6 4.7K
OFF
D3 WG599
TR1
R7 4.7K
ON
TR2
R9 10K
ON
TR3
OFF
TR4
R8 1K
D10 RD9A
ON
TR6
4 FROM RIGHT LINE OUTPUT
C3 10/25
D2 WG599
D5 WG599
C5 0.01
C7 0.022
R12 22K
C9 0.022
R19 470K
C6 0.01
C4 0.01
R8 4.7K
D7 WG599
R13 4.7K
3 GROUND
2
1
REV. SW. SW3
FWD. SW. SW2
STOP
PLAY
REC.
REV. SENSING POLE
FWD. SENSING POLE

4) REV P.B. MODE


R20 100
6 +B
OFF
R6 1K
5 FROM LEFT LINE OUTPUT
D9 RD9A
TR5
R17 470K
R3 10K
R5 3.3K
RL1 REV.RELAY
D6 WG599
D8 WG599
R10 2.2K
R11 100K
R14 2.2K
D4 1N34A
C8 33/25
R15 22K
R4 4.7K
D3 WG599
OFF
R6 4.7K
R7 4.7K
ON
R9 10K
OFF
ON
TR1
TR2
TR3
TR4
OFF
R8 1K
4 FROM RIGHT LINE OUTPUT
D10 RD9A
TR6
R19 470K
C3 10/25
D2 WG599
D5 WG599
C6 0.01
C5 0.01
C7 0.022
R12 22K
C9 0.022
C4 0.01
R8 4.7K
D7 WG599
R13 4.7K
3 GROUND
2
1
REV. SW. SW3
FWD. SW. SW2
STOP
PLAY
REC.
REV. SENSING POLE
FWD. SENSING POLE

5) REV P.B. TO FWD P.B. MODE


R20 100
6 +B
R6 1K
5 FROM LEFT LINE OUTPUT
D9 RD9A
TR5
R17 470K
R3 10K
R5 3.3K
RL1 REV.RELAY
D6 WG599
D8 WG599
R10 2.2K
R11 100K
R14 2.2K
D4 1N34A
C8 33/25
R15 22K
R4 4.7K
D3 WG599
R6 4.7K
R7 4.7K
R9 10K
TR1
TR2
TR3
TR4
R8 1K
4 FROM RIGHT LINE OUTPUT
D10 RD9A
TR6
R19 470K
C3 10/25
D2 WG599
D5 WG599
C6 0.01
C5 0.01
C7 0.022
R12 22K
C9 0.022
C4 0.01
R8 4.7K
D7 WG599
R13 4.7K
3 GROUND
2
1
REV. SW. SW3
FWD. SW. SW2
STOP
PLAY
REC.
REV. SENSING POLE
FWD. SENSING POLE

V. MECHANISM ADJUSTMENTS

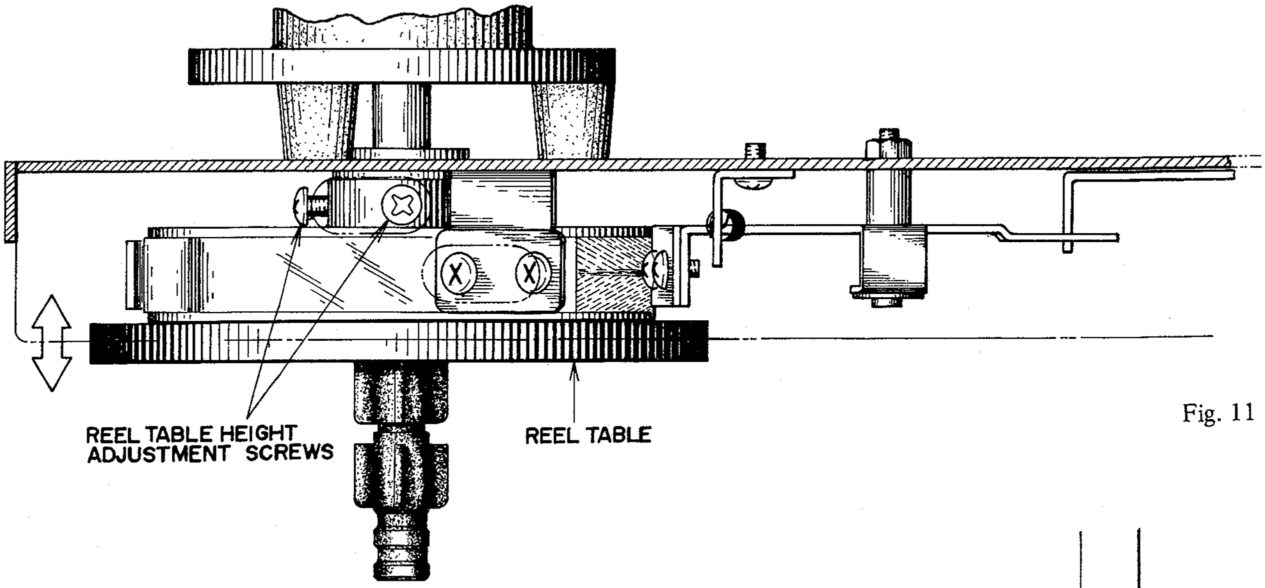

REEL TABLE HEIGHT ADJUSTMENT SCREWS
REEL TABLE

Fig. 11

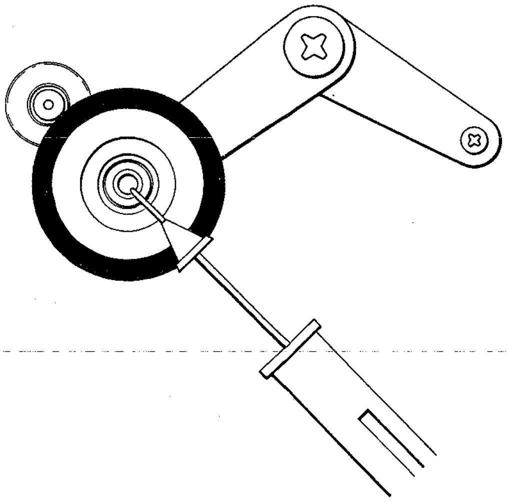


Fig. 12

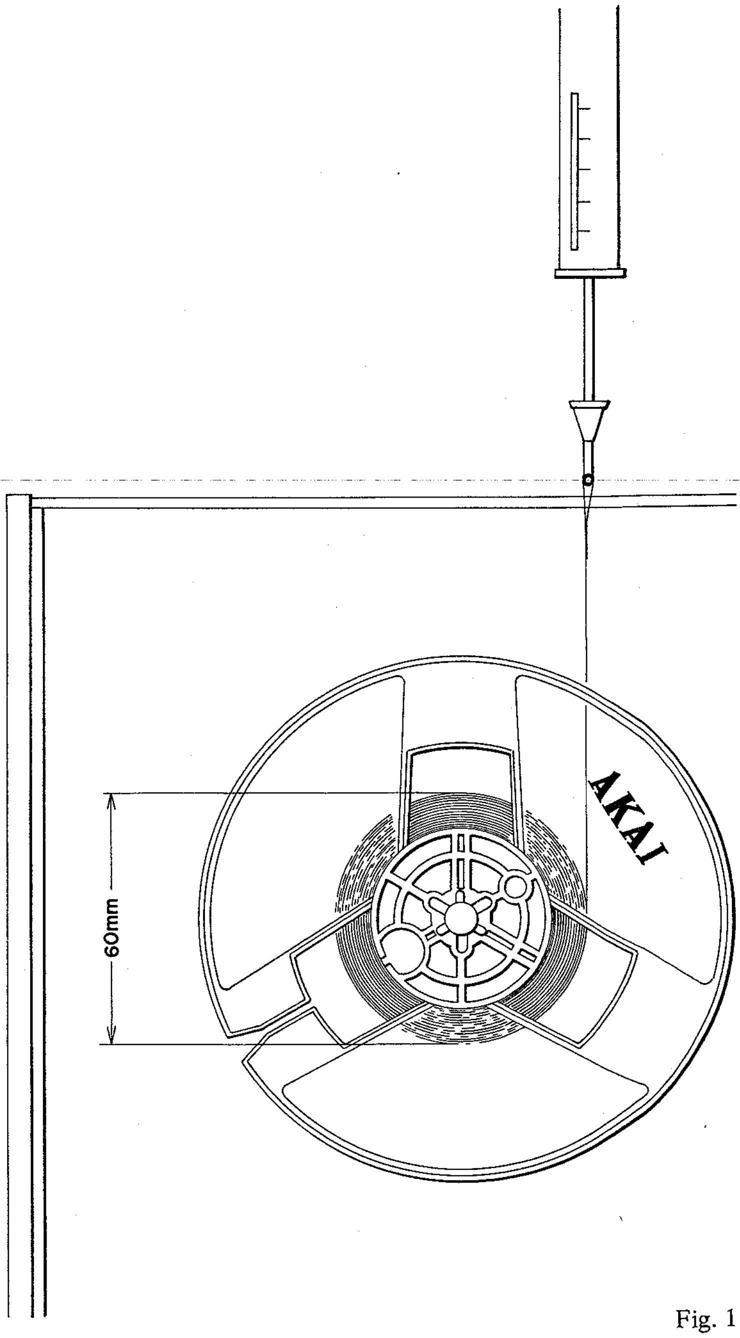


Fig. 13

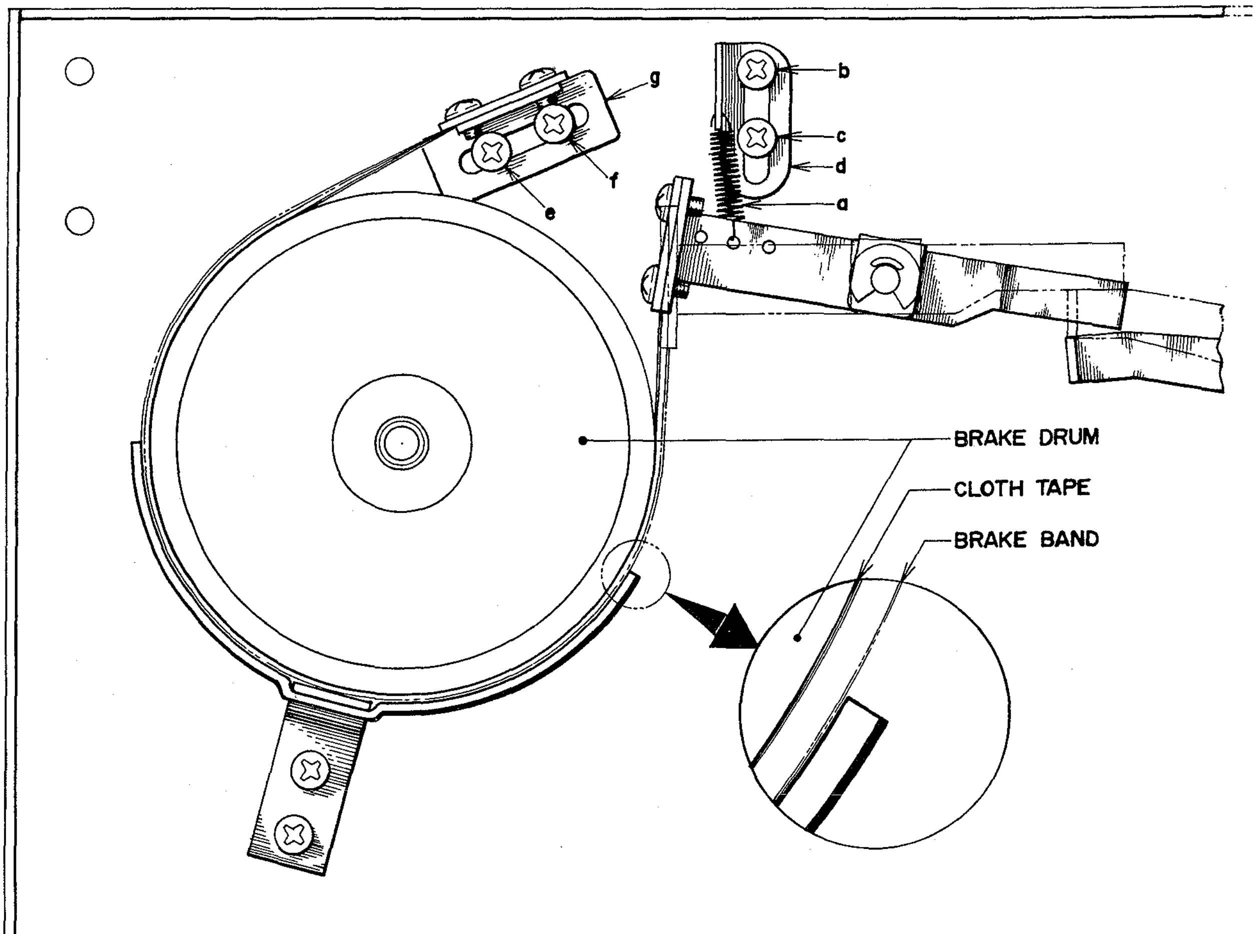


Fig. 14

1. REEL TABLE HEIGHT ADJUSTMENT

As shown in Fig. 11, loosen reel table height adjustment screws, and adjust reel table height by moving table in direction of arrow and positioning so that the tape winds in the center of the reel.

2. PINCH WHEEL PRESSURE MEASURING METHOD

Measure pinch wheel pressure with a tension gauge as shown in Fig. 12. Read the value on the tension gauge as soon as the pinch wheel separates from the tape and tape travel stops. Ideal pinch wheel pressure is 1.8 kg.

3. BRAKE TENSION ADJUSTMENT

1) As shown in Fig. 13, use a 60 mm diameter tape wound on a 5" reel and measure the brake tension with a tension gauge. Ideal brake tension is from 300 to 370 grams.
2) Brake tension adjustment can be made as follows: (Refer to Fig. 14)
   a) Change position of Suspended Spring (a).
   b) Loosen Screws (b) and (c) and adjust the vertical position of Spring Suspension Metal (d).
   c) Loosen Screws (e) and (f) and adjust the horizontal position of Brake Band Suspension Metal (g).
   d) Only the left side is shown in Fig. 14, but the right side must be adjusted in the same way.

NOTE: In making brake tension adjustment, at all modes except stop mode, confirm that the brake band completely separates from the cloth tape on the brake drum. (Refer to Fig. 14)

4. SUPPLY VOLTAGE AND TENSION AT VARIOUS OPERATING MODES

Torque Motor Mode	Left Side	Right Side
Normal P.B.	33V 60 g	57V 200 g
Reverse P.B.	57V 200 g	33V 60 g
F. FWD	6V 15 g	95 V 460 to 480 g
RWD	95 V 460 to 480 g	6 V 15 g

Chart 1

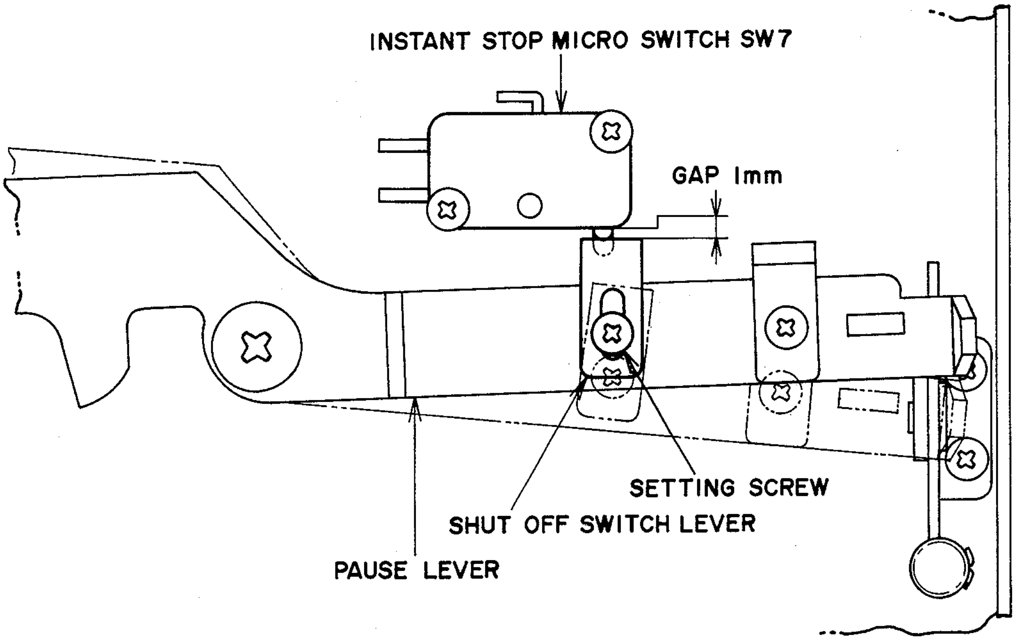

INSTANT STOP MICRO SWITCH SW7
GAP 1mm
SETTING SCREW
SHUT OFF SWITCH LEVER
PAUSE LEVER

Fig. 15

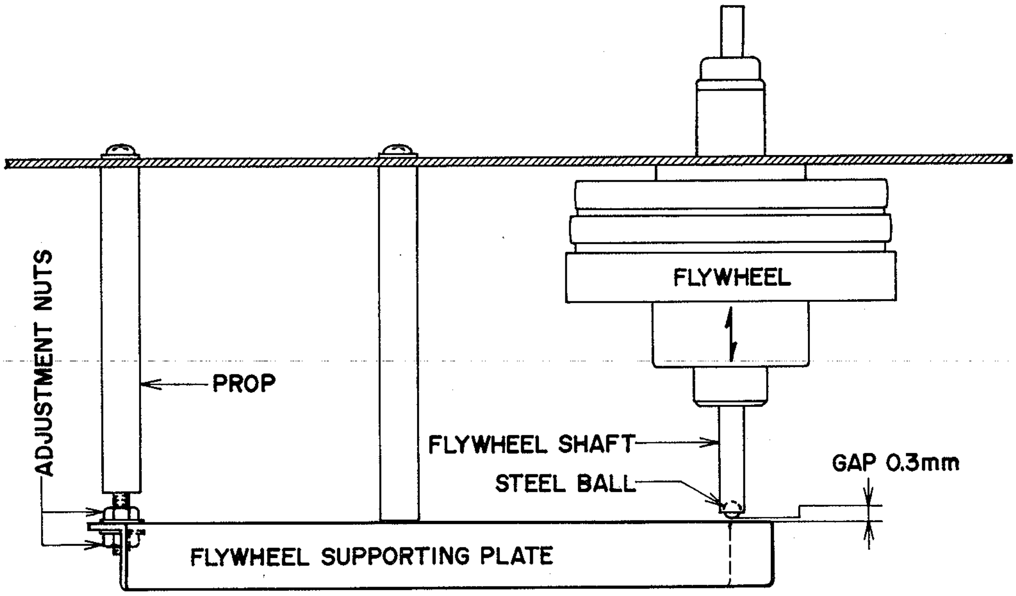

FLYWHEEL
ADJUSTMENT NUTS
PROP
FLYWHEEL SHAFT
STEEL BALL
GAP 0.3mm
FLYWHEEL SUPPORTING PLATE

Fig. 16

5. SHUT-OFF SWITCH LEVER POSITION ADJUSTMENT

Adjust the vertical (up and down) position of the shut-off switch lever so that at pause mode, the gap between the shut-off switch lever and Instant Stop Micro Switch SW7 is 1 mm as shown in Fig. 15.

6. FLYWHEEL LOOSE PLAY ADJUSTMENT

Turn the adjustment nuts to obtain a 3 mm gap between the steel ball and flywheel supporting plate when the flywheel is moved in the direction of the arrow as shown in Fig. 16.

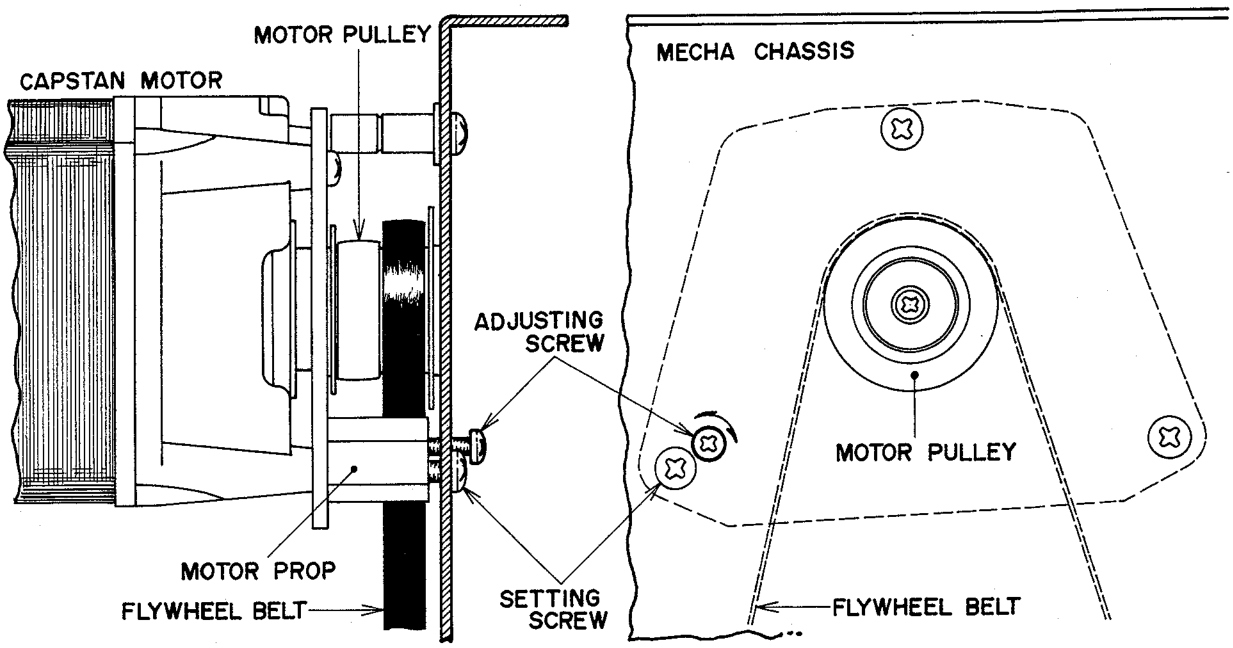

MOTOR PULLEY
CAPSTAN MOTOR
MECHA CHASSIS
ADJUSTING SCREW
MOTOR PULLEY
MOTOR PROP
FLYWHEEL BELT
SETTING SCREW
FLYWHEEL BELT

Fig. 17

7. FLYWHEEL BELT POSITION ADJUSTMENT

1) With capstan motor revolutions operating at Rev. mode, loosen setting screw and turn flywheel belt position adjustment screw until the flywheel belt comes to the center of the motor pulley. (Refer to Fig. 17)
2) Tighten setting screw to maintain center positioning of flywheel belt at Rev. mode.
3) Confirm that the flywheel belt runs on the center of the motor pulley at Fwd. mode also.

VI. OPEN REEL HEAD ADJUSTMENTS

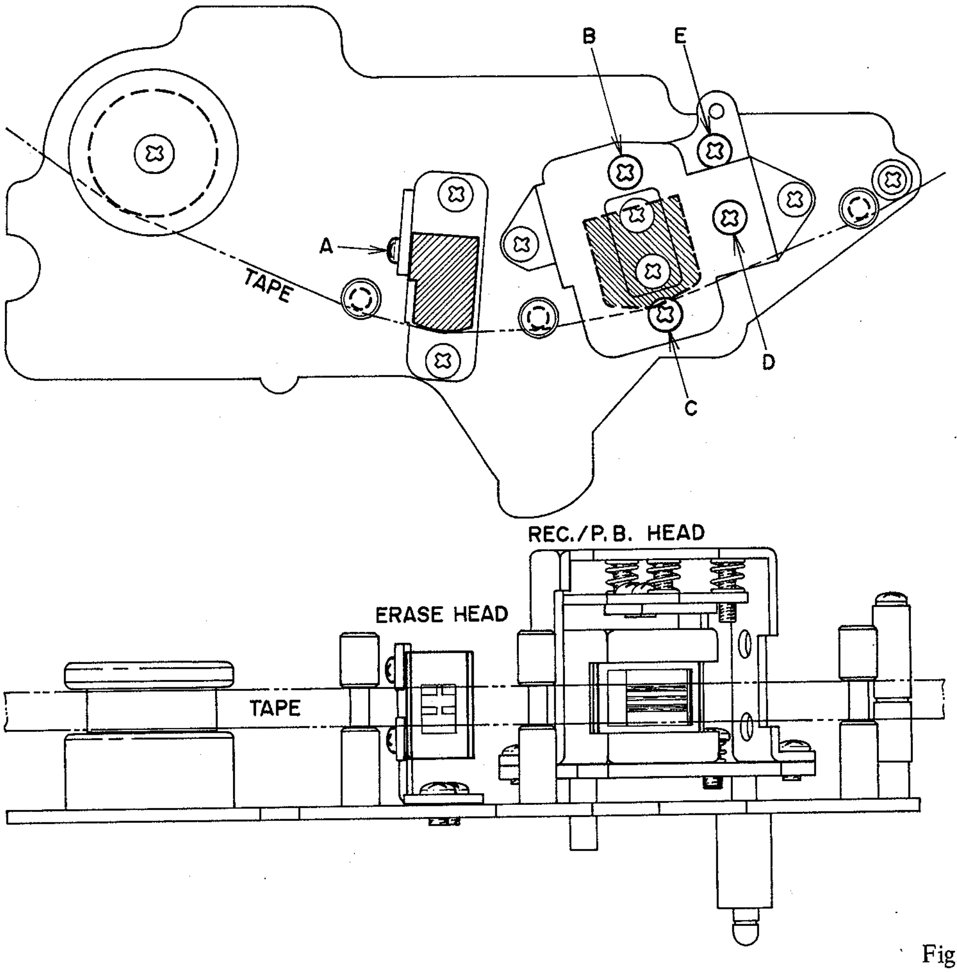


Fig. 18

1. HEAD HEIGHT ADJUSTMENT

1) Erase Head

At playback mode, loosen Screws (A) shown in Fig. 18 and adjust head height so that the upper edge of the tape is about 0.1 mm lower than the upper edge of the left channel erase head core.

2) Recording Playback Head

a) At Forward Playback mode, adjust REC/P.B. Head height by turning screws (B)(C) and (D) shown in Fig. 18 to left and right until the upper edge of the tape is the same height as the upper edge of the left channel REC/P.B. Head core.

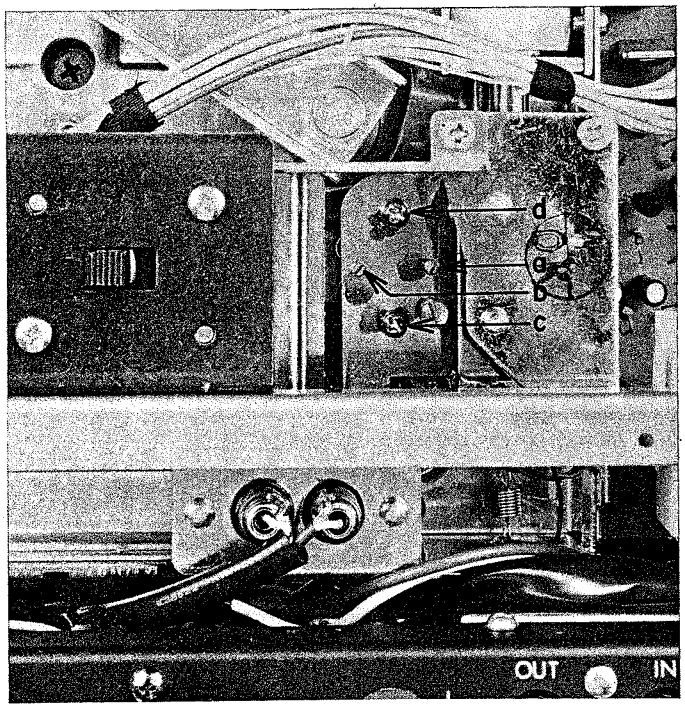
b) At Reverse Playback mode, adjust REC/P.B. Head height by turning Screw (E) shown in Fig. 18 to left and right until the lower edge of the tape is the same height as the lower edge of the right channel REC/P.B. Head core.

2. REC/P.B. HEAD AZIMUTH ALIGNMENT ADJUSTMENT

1) Connect a high sensitivity V.T.V.M. to the line output terminals.
2) Set both the Tape Speed Switch and Equalizer Switch to 7-1/2 ips (19 cm/sec.), and depress REEL button.
3) In case of model GX-1820, set Speaker Switch to OFF position.
4) Playback an 8,000 Hz 3-3/4 ips recorded Ampex Alignment test tape.
5) At Forward Playback mode, turn Azimuth Alignment Screw (D), shown in Fig. 18 to obtain maximum line output level on both channels.
6) After the adjustment in Item 5) above has been completed, loosen Screws (F)(G) shown in Fig. 18 and move the head gap side of the REC/P.B. Head to left and right. When tension is applied to the supply reel side and the line output level of both channels do not fluctuate, (maximum allowable fluctuation within +0.5/–0 dB) fix Screws (F)(G) to maintain this condition.
7) At Reverse Playback mode, make the same adjustment as outlined above until the line output level of both channels do not fluctuate.

3. To obtain best results, repeat adjustments outlined in Paragraphs 1 and 2 above 2 or 3 times.
New blank tape should be used when making these adjustments.

VII. CARTRIDGE HEAD ADJUSTMENTS



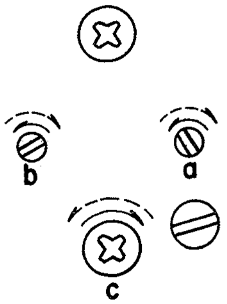


Fig. 19

1. HEAD ANGLE ADJUSTMENT

Connect a high sensitivity V.T.V.M. to the line output. Playback Program 3 of an 8,000 Hz prerecorded tape and adjust Screw (C) shown in Fig. 19 so that the V.T.V.M. indication is maximum.

2. HEAD HEIGHT AND CROSS TALK ADJUSTMENT

1) Connect a high sensitivity V.T.V.M. to the line output.
2) Playback Program 2 of Test Tape and adjust Screw (d) shown in Fig. 19 so that the V.T.V.M. indication is minimum.
3) The adjustments outlined in Items 2) above will result in ideal head height position and minimize cross talk.

Test Tape

This test tape is a tape specially designed by AKAI for head height and cross talk adjustment tests.

Program 1 . . . 1,000 Hz
Program 2 . . . Blank
Program 3 . . . 1,000 Hz
Program 4 . . . 3,000 Hz

3. CONFIRMATION OF HEAD HEIGHT

1) Record a 1,000 Hz 0 VU signal on a Blank Test Tape. Next, run the tape under a non-input signal condition. Then playback the tape.
2) At this time check to see whether or not the recorded sound is emitted from the speaker or line output.
3) If no signal or no sound is emitted, the height of the recording and erase heads are properly adjusted. If the recorded signal has not been perfectly erased and is emitted from the speaker or line output, the recording and erase head height is not properly adjusted and the following adjustment is necessary.

> "Turn Screws (a) and (b) in the same direction and to the same degree and turn Screw (c) in the opposite direction to the same degree (see Fig. 19). This fine adjustment screw should not be turned to exceed 10° and should equal the degree to which Screws (a) and (b) have been adjusted."

4. After the above adjustment has been carried out, it is necessary to readjust head height and cross talk. Use a test tape and make the adjustments outlined in Item 2-2) again.

Blank Test Tape

This is also a special tape designed by AKAI. Duration of tape is only 15 seconds.

VIII. AMP. SYSTEM ADJUSTMENTS

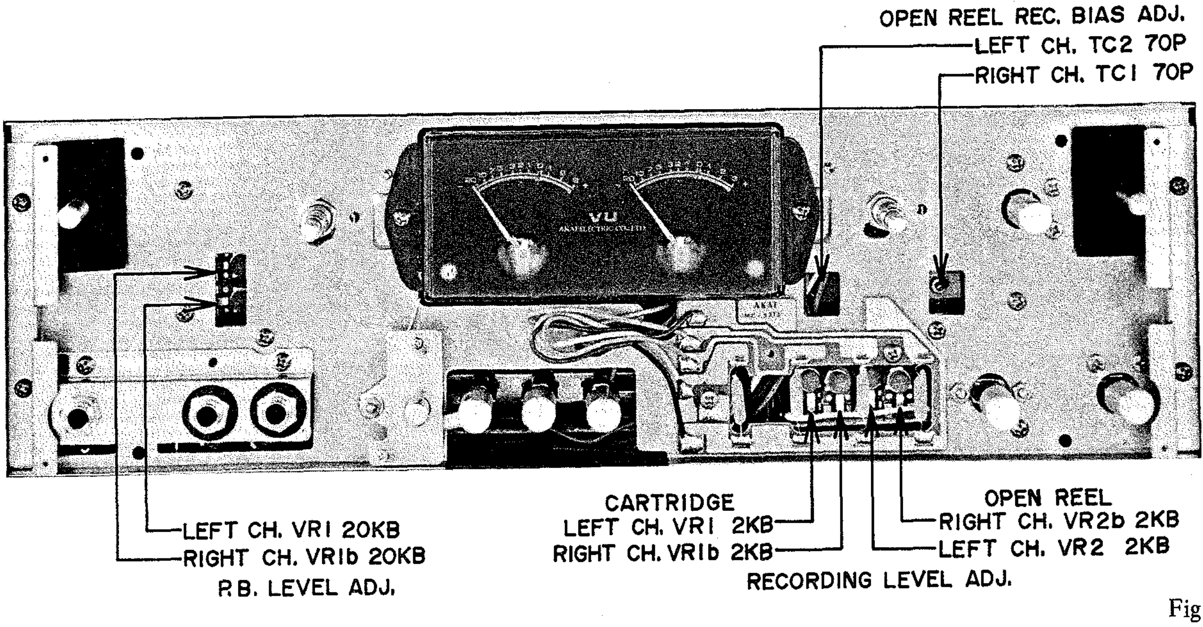

OPEN REEL REC. BIAS ADJ.
LEFT CH. TC2 70P
RIGHT CH. TC1 70P
LEFT CH. VR1 20KB
RIGHT CH. VR1b 20KB
P.B. LEVEL ADJ.
CARTRIDGE
LEFT CH. VR1 2KB
RIGHT CH. VR1b 2KB
OPEN REEL
RIGHT CH. VR2b 2KB
LEFT CH. VR2 2KB
RECORDING LEVEL ADJ.
VU

Fig. 20

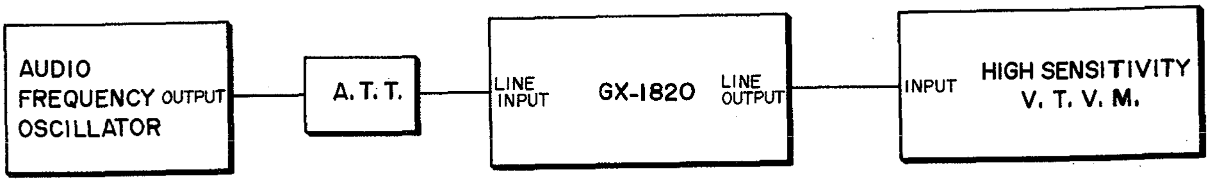

AUDIO FREQUENCY OSCILLATOR
OUTPUT
A.T.T.
LINE INPUT
GX-1820
LINE OUTPUT
INPUT
HIGH SENSITIVITY V.T.V.M.

Fig. 21 Measuring Instrument Connection

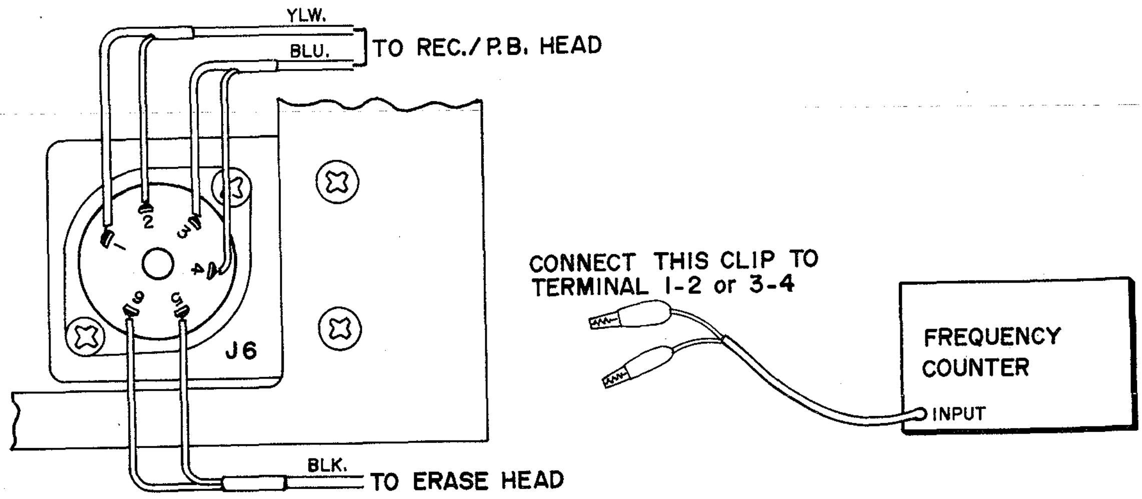

YLW.
BLU.
TO REC./P.B. HEAD
1
2
3
4
5
6
J6
BLK.
TO ERASE HEAD
CONNECT THIS CLIP TO TERMINAL 1-2 or 3-4
FREQUENCY COUNTER
INPUT

Fig. 22

1. PLAYBACK LEVEL ADJUSTMENT

1) Connect a high sensitivity V.T.V.M. to the line output terminals.
2) Set both the tape speed switch and the equalizer to 7-1/2 ips (19 cm/sec.).
3) Depress the REEL mode selector and set left and right level controls to maximum. (Turn fully clockwise)
4) In case of model GX-1820, set speaker switch to OFF position.
5) Playback a 250 Hz 0 VU recorded test tape.
6) Adjust Pre-amp. P.C. Board Playback Level Adjustment Semi-fixed Resistors VR1 20 kB (left ch.), and VR1b 20 kB (right ch.) in Fig. 20 to obtain a high sensitivity V.T.V.M. indication of 4 dB (1.228 V).

2. OPEN REEL HIGH FREQUENCY DEVIATION CHECK

1) Between Channels
Playback an 8,000 Hz, 3-3/4 ips alignment test tape and confirm that the difference in output between left and right channel is within ±2 dB.
2) Between Forward and Reverse Playback
Playback an 8,000 Hz 3-3/4 ips alignment test tape at both Fwd and Rev modes and confirm that the difference in output between Fwd and Rev mode is within ±3 dB.
3) In making the checks outlined in Items 2-1) and 2-2) above, if the difference in output is not within specifications, re-adjust head azimuth alignment until output deviation is within specifications.

3. CARTRIDGE PLAYBACK LEVEL CHECK

Following open reel playback level adjustment, playback a 500 Hz 0 VU recorded cartridge test tape and confirm that the line output level is 4 ± 1.5 dB.

4. CARTRIDGE HIGH FREQUENCY DEVIATION CHECK

Playback an 8,000 Hz alignment test tape and confirm that the difference in output between left and right channels is within ±3 dB. In case the difference is not within specifications, re-adjust cartridge head azimuth alignment until output deviation is within specifications.

5. OPEN REEL RECORDING LEVEL ADJUSTMENT

1) Connect an Audio Frequency Oscillator to the line input terminals through an attenuator, and connect a high sensitivity V.T.V.M. to the line output terminals.
2) Set both the tape speed switch and the equalizer to 7-1/2 ips (19 cm/sec.).
3) Depress REEL mode selector, and set left and right level controls to maximum. (Turn fully clockwise)
4) Set S.R.T. switch to OFF (out) position.
5) In case of model GX-1820, set speaker switch to OFF position.
6) Load a Fuji S-100 blank tape.
7) Set machine to recording mode, and supply a 1,000 Hz signal to the line input from the Audio Frequency Oscillator. Adjust attenuator to obtain a high sensitivity V.T.V.M. indication of 4 dB (1.228 V).
8) Record for several seconds under the condition described in Item 6–7) above. Then rewind and playback the recorded tape and check the V.T.V.M. indication.
9) In the event that the V.T.V.M. indication is not 4 dB, adjust Mode Switch P.C. Board Open Reel Recording Level Adjustment Semi-fixed Resistors VR2 2 kB (left ch.) and VR2b 2 kB (right ch.) shown in Fig. 20 to obtain a 4 dB (1.228 V) V.T.V.M. indication.

6. RECORDING BIAS ADJUSTMENT

1) Follow Items 6-1) through 6-6) above, setting tape speed switch and equalizer to 3-3/4 ips position in Item 6-2)
2) Set machine to recording mode and supply a 1,400 Hz signal to the line input from the Audio Frequency Oscillator. Adjust attenuator to obtain a high sensitivity V.T.V.M. indication of −16 dB (150 mV).
3) Record for several seconds under the conditions described in Item 7-2) above. Then switch the oscillation frequency of the Audio Frequency Oscillator to 14,000 Hz and record for another several seconds.
4) Rewind the tape and playback the 1,400 Hz and 14,000 Hz recorded signals and check the V.T.V.M. indication.
5) In case the V.T.V.M. indication reveals that the output levels of the 14,000 Hz and the 1,400 Hz signals are not the same, adjust OSC. P.C. Board Recording Bias Adjustment Trimmer Condensers TC2 70P (left ch.) and TC1 70P (right ch.) until the signal output of these two frequencies are equal.
6) Because, there are times at which the recording level is affected, make a 1,000 Hz 0 VU recording, and re-check the recording level following recording bias adjustment.

7. CARTRIDGE RECORDING LEVEL ADJUSTMENT

1) Connect an Audio Frequency Oscillator to the line input terminals through an attenuator, and connect a high sensitivity V.T.V.M. to the line output terminals.
2) Set the tape speed switch to "CART" and the equalizer to 3-3/4 ips (9.5 cm/sec.).
3) Depress the "CART" mode selector, and set left and right level controls to maximum. (Turn fully clockwise)
4) Set S.R.T. switch to OFF (out) position and set cartridge program selector to ch. "2" or "3".
5) In case of model GX-1820, set speaker switch to OFF position.
6) Load a *Blank Cartridge Test Tape.
7) Set machine to recording mode and supply a 1,000 Hz signal to the line input from the Audio Frequency Oscillator. Adjust the attenuator to obtain a high sensitivity V.T.V.M. indication of 4 dB (1.228 V).

8) Record for several seconds under the conditions described in Item 8-7) above. Then playback the recorded tape and check the V.T.V.M. indication.
9) In the event that the V.T.V.M. indication is not 4 dB, adjust Mode Switch P.C. Board Cartridge Recording Level Adjustment Semi-fixed Resistors VR1 2 kB (left ch.) and VR1b 2 kB (right ch.) to obtain a 4 dB V.T.V.M. indication.

NOTE: 1) In case cartridge recording level is not 4 dB, adjust to specifications of 2±2 dB, and adjust to obtain equal right and left ch. output.
* This is also a special tape designed by AKAI. Duration of tape is only 15 seconds.

8. RECORDING BIAS FREQUENCY MEASURING METHOD

Connect a frequency counter to Terminals 1-2 or 3-4 of J6 in Fig. 22. Set machine to recording mode and measure the recording bias frequency. Correct recording bias frequency is 62.5 ± 5 kHz.

9. POWER AMP. IDLING CURRENT ADJUSTMENT

1) Remove the wire from Power Transistor P.C. Board.
2) Connect a mA scale ammeter between collector and wire (disconnected wire).
3) Adjust Semi-fixed Resistors VR1 and VR2 (1 kB) in Fig. 23 so that the 2 ammeters (A1, A2) indicate 18 to 20 mA.
4) Make the same adjustment on both left and right channel Power Amp.

NOTE: Be sure to match ammeter polarities.

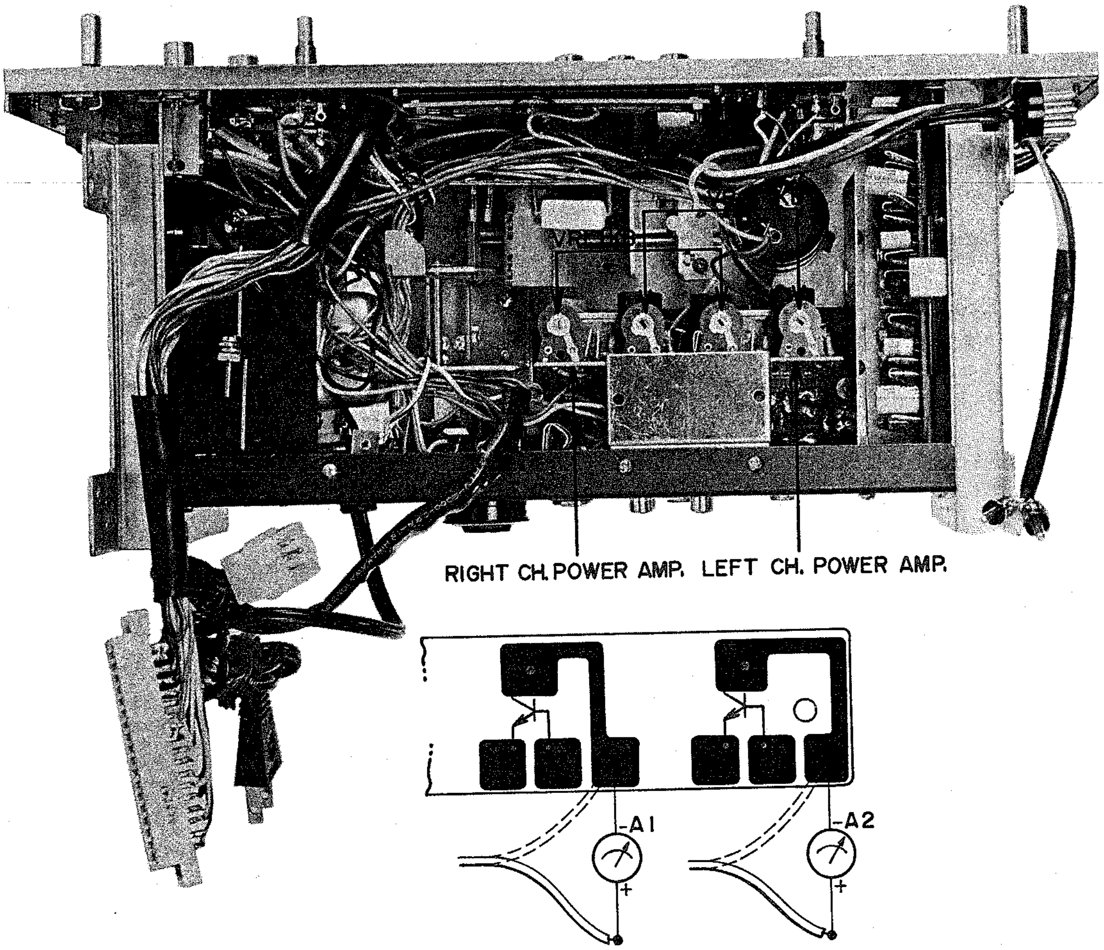


Fig. 23

IX. D.C. RESISTANCE OF EACH COIL

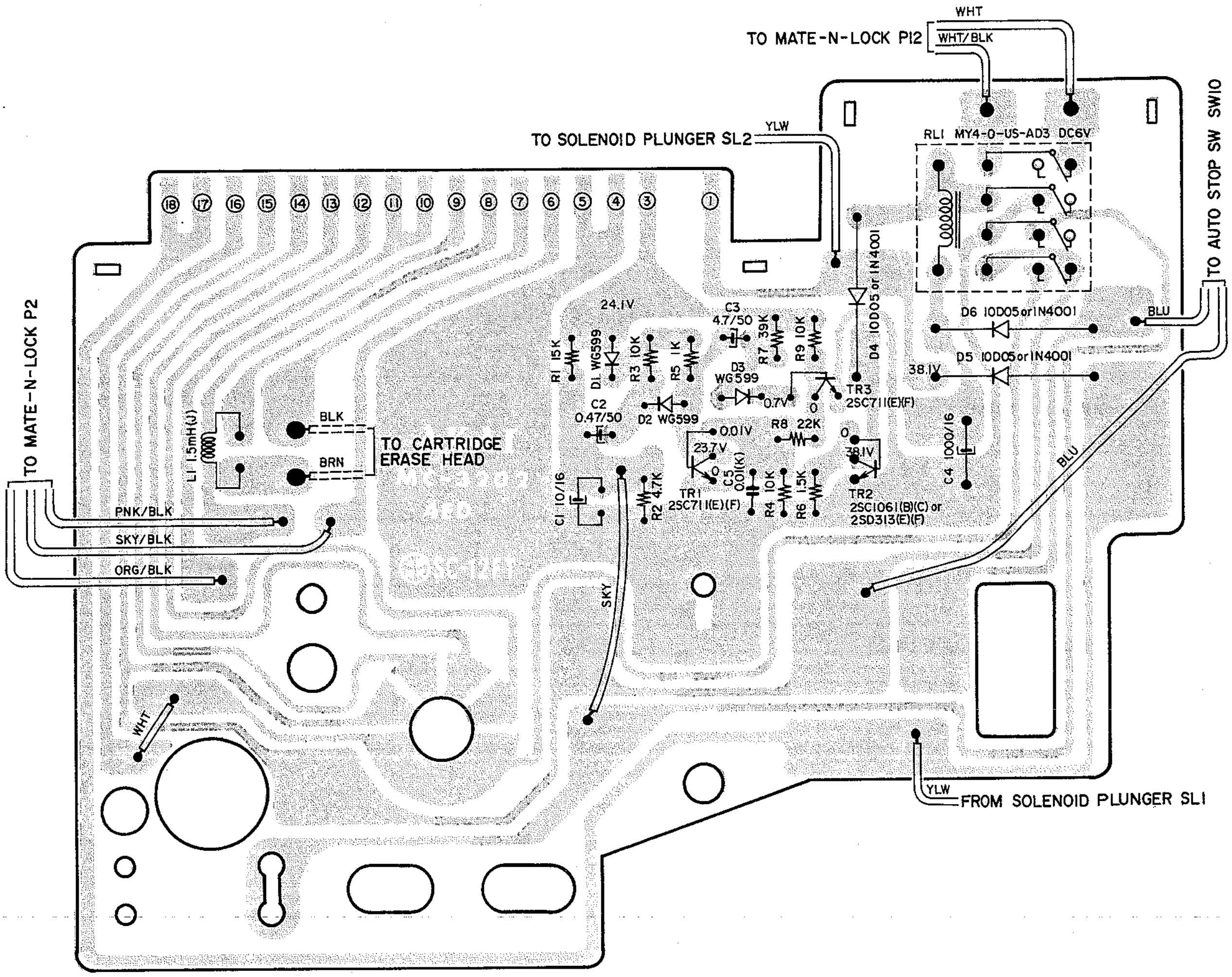
(Average D.C. Resistance Values)

Part	Designation	D.C. Resistance
Capstan Motor	HM-2-16MC	Between PNK-RED 130 Ω Between PNK-BRN 180 Ω Between GRN-GRY 360 Ω Between GRN-YLW 370 Ω
Reel Motor	24XO-MR	Between RED-BLU 74 Ω Between GRN-YLW 166 Ω
Head Reverse Solenoid	RGA-10143	630 Ω
Program Selector Solenoid	840N	18 Ω
Relay	MY4-O-US-AD3 DC6 V	43 Ω
Relay	MY4-O-US-AD4 DC24 V	650 Ω
Head Phone Output Transformer	N19-228S	590 Ω Primary 1.4 Ω Secondary
Input Transformer	N24B 6306AT	16 Ω Primary 7.5 Ω Secondary
Oscillator Coil	OT-803	Between 1-3 0.2 Ω Between 4-6 0.8 Ω
Erase Head	E4-260	4 Ω
Recording/Playback Head	E8-1	4.5 Ω
Recording/Playback Head	P4-201	240 Ω each channel
Recording/Playback Head	P8-1	110 Ω each channel

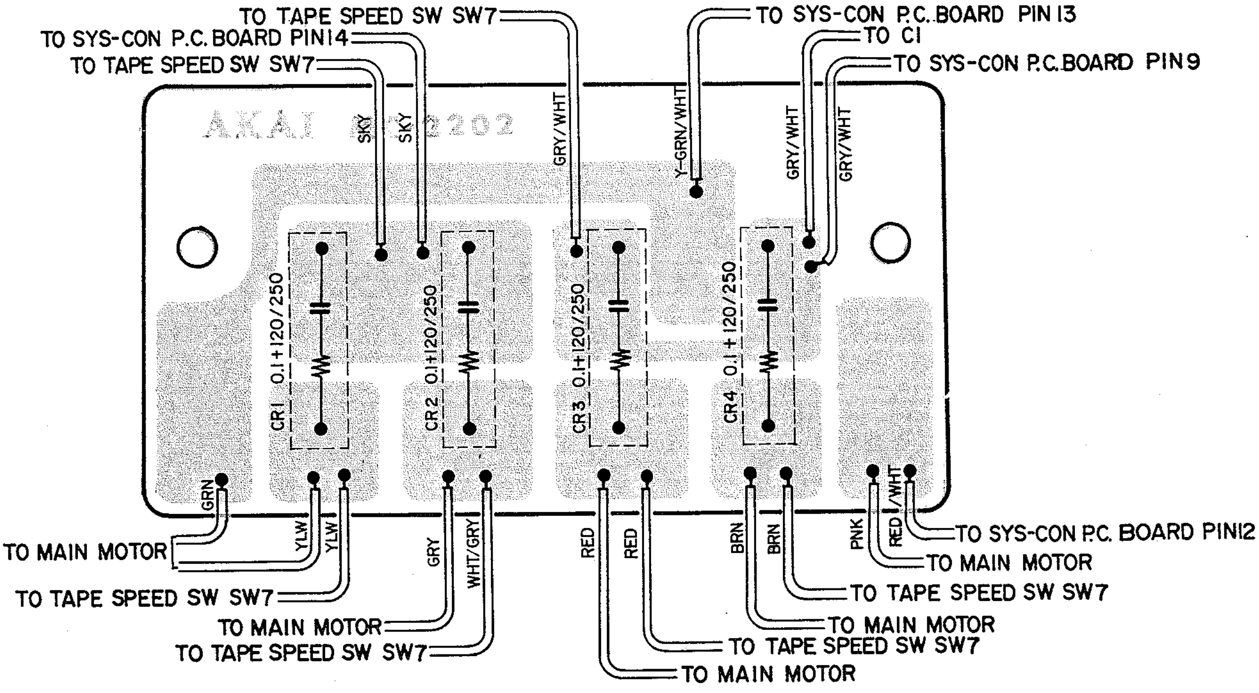
Chart 2

X. COMPOSITE VIEWS OF COMPONENTS

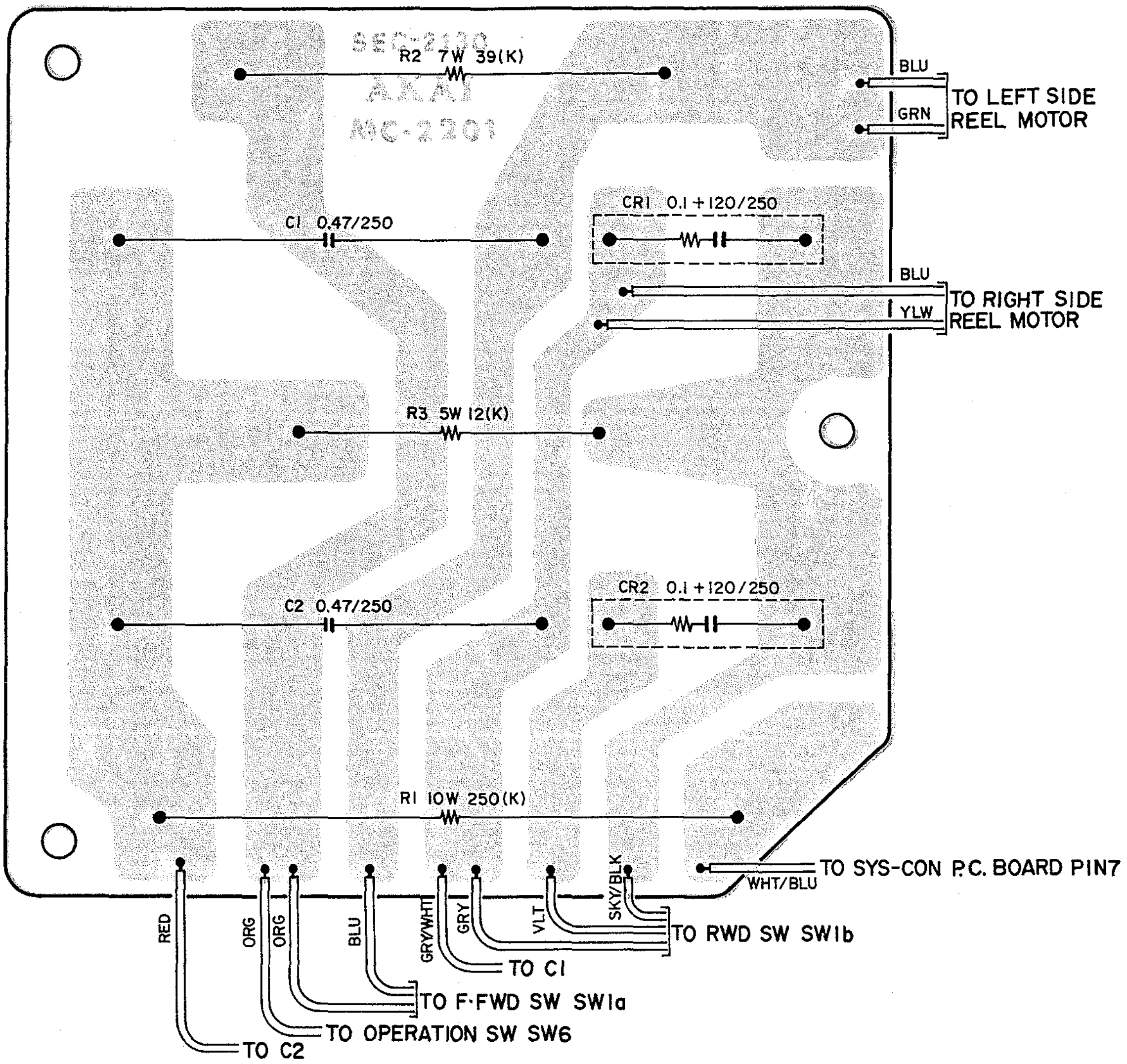
1. CARTRIDGE P.C. BOARD MC-3202


WHT
TO MATE-N-LOCK P12
WHT/BLK
TO SOLENOID PLUNGER SL2
YLW
RL1 MY4-0-US-AD3 DC6V
TO AUTO STOP SW SW10
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 1
TO MATE-N-LOCK P2
L1 1.5mH(J)
BLK
BRN
TO CARTRIDGE ERASE HEAD
PNK/BLK
SKY/BLK
ORG/BLK
24.1V
R1 15K
D1 WG599
R3 10K
R5 1K
C3 4.7/50
R7 39K
R9 10K
D3 WG599
D2 WG599
C2 0.47/50
0.7V
0
TR3 2SC711(E)(F)
D4 10D05 or 1N4001
D6 10D05 or 1N4001
D5 10D05 or 1N4001
38.1V
BLU
0.01V
23.7V
R8 22K
0
38.1V
C1 10/16
R2 4.7K
TR1 2SC711(E)(F)
C5 0.01(K)
R4 10K
R6 1.5K
TR2 2SC1061(B)(C) or 2SD313(E)(F)
C4 1000/16
SKY
WHT
YLW
FROM SOLENOID PLUNGER SL1
AKAI MC-3202 AED

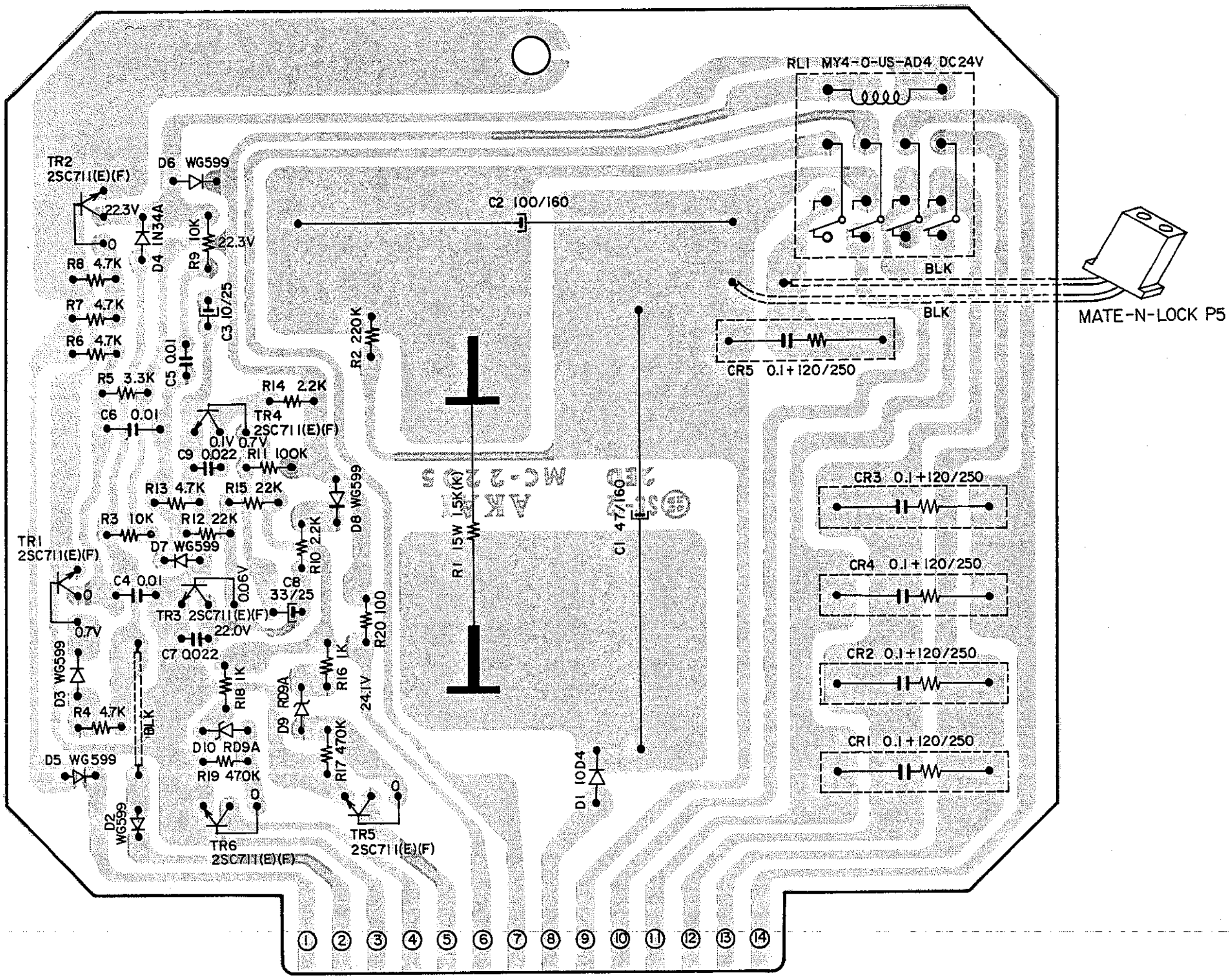
2. SPARK QUENCHER P.C. BOARD MC-2202


TO TAPE SPEED SW SW7
TO SYS-CON P.C.BOARD PIN14
TO TAPE SPEED SW SW7
TO SYS-CON P.C.BOARD PIN13
TO C1
TO SYS-CON P.C.BOARD PIN9
AKAI MC-2202
SKY
SKY
GRY/WHT
Y-GRN/WHT
GRY/WHT
GRY/WHT
CR1 0.1+120/250
CR2 0.1+120/250
CR3 0.1+120/250
CR4 0.1+120/250
GRN
YLW
YLW
GRY
WHT/GRY
RED
RED
BRN
BRN
PNK
RED/WHT
TO MAIN MOTOR
TO TAPE SPEED SW SW7
TO MAIN MOTOR
TO TAPE SPEED SW SW7
TO SYS-CON P.C. BOARD PIN12
TO MAIN MOTOR
TO TAPE SPEED SW SW7
TO MAIN MOTOR
TO TAPE SPEED SW SW7
TO MAIN MOTOR

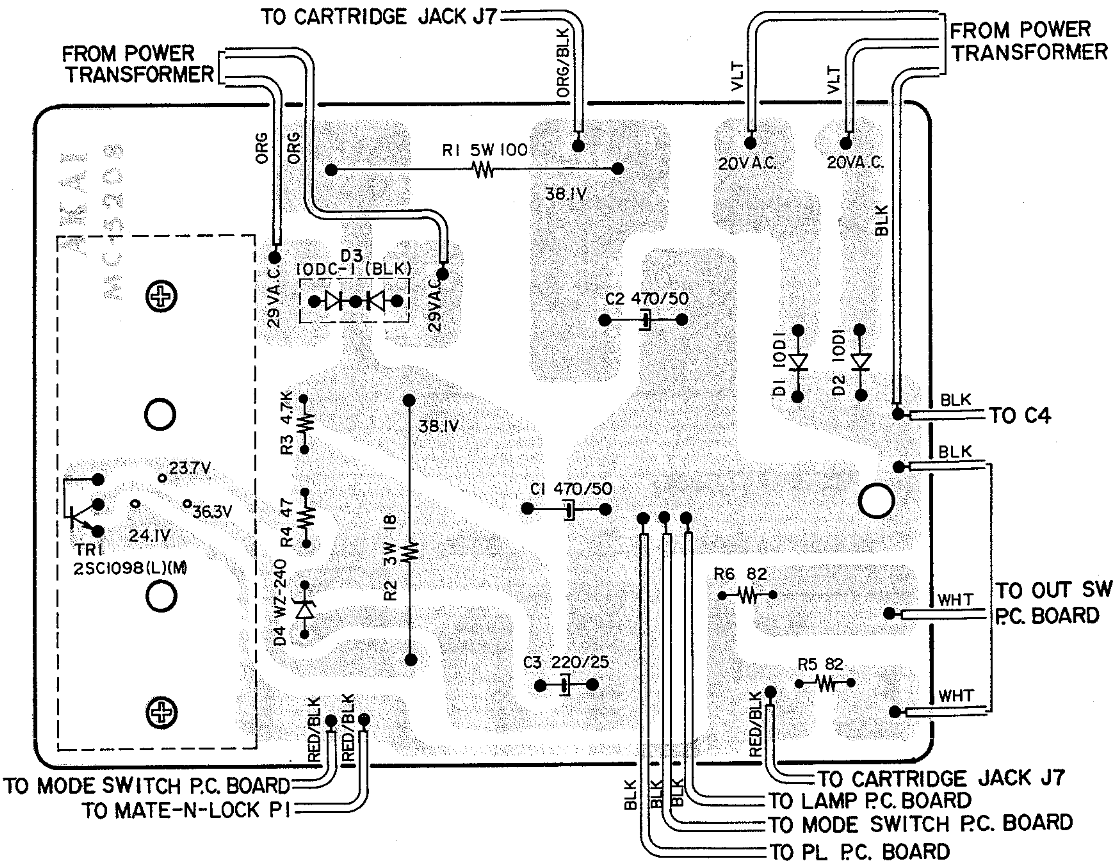
3. RESISTOR P.C. BOARD MC-2201


AKAI
MC-2201
R2 7W 39(K)
BLU
GRN
TO LEFT SIDE REEL MOTOR
C1 0.47/250
CR1 0.1+120/250
BLU
YLW
TO RIGHT SIDE REEL MOTOR
R3 5W 12(K)
C2 0.47/250
CR2 0.1+120/250
R1 10W 250(K)
TO SYS-CON P.C. BOARD PIN7
WHT/BLU
RED
ORG
ORG
BLU
GRY/WHT
GRY
VLT
SKY/BLK
TO RWD SW SW1b
TO C1
TO F·FWD SW SW1a
TO OPERATION SW SW6
TO C2

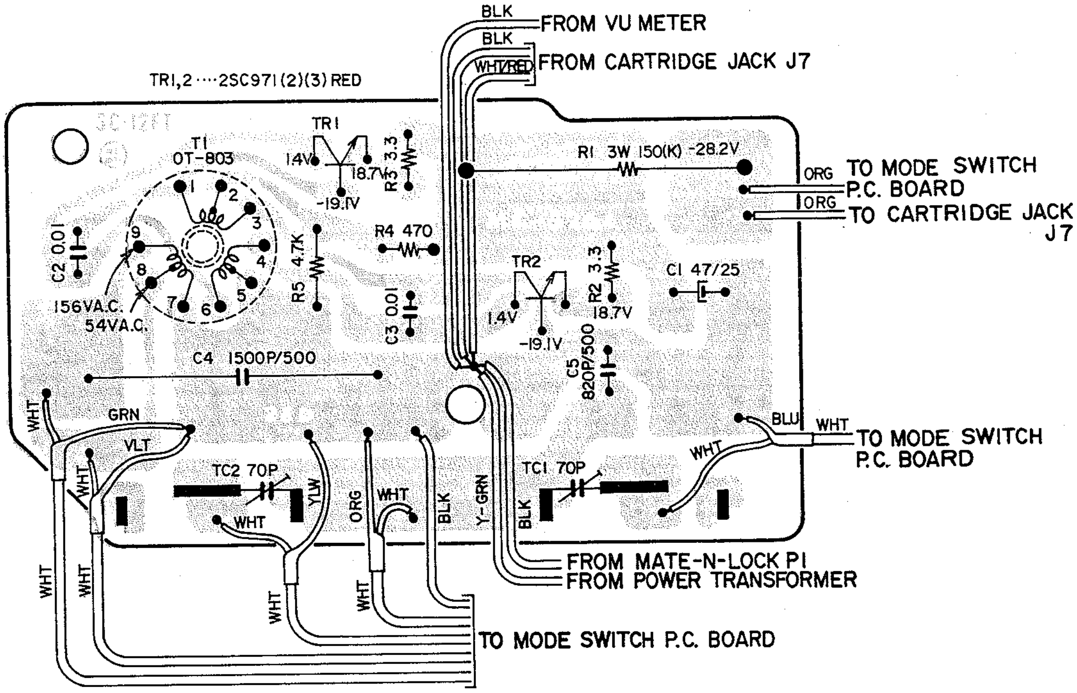
4. SYSTEM CONTROL P.C. BOARD MC-2205


RL1 MY4-0-US-AD4 DC24V
BLK
BLK
MATE-N-LOCK P5
C2 100/160
CR5 0.1+120/250
CR3 0.1+120/250
CR4 0.1+120/250
CR2 0.1+120/250
CR1 0.1+120/250
R2 220K
R1 15W 1.5K(K)
C1 47/160
D1 10D4
TR2
2SC711(E)(F)
22.3V
0
D6 WG599
D4 IN34A
R9 10K
22.3V
R8 4.7K
R7 4.7K
R6 4.7K
C3 10/25
C5 0.01
R5 3.3K
R14 2.2K
C6 0.01
TR4
2SC711(E)(F)
0.1V 0.7V
C9 0.022
R11 100K
R13 4.7K
R15 22K
D8 WG599
R3 10K
R12 22K
D7 WG599
R10 2.2K
TR1
2SC711(E)(F)
0
C4 0.01
0.06V
C8
33/25
TR3 2SC711(E)(F)
22.0V
0.7V
C7 0.022
R20 100
D3 WG599
R18 1K
R16 1K
D9 RD9A
24.1V
R4 4.7K
BLK
D10 RD9A
R17 470K
D5 WG599
R19 470K
0
0
D2 WG599
TR6
2SC711(E)(F)
TR5
2SC711(E)(F)
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭

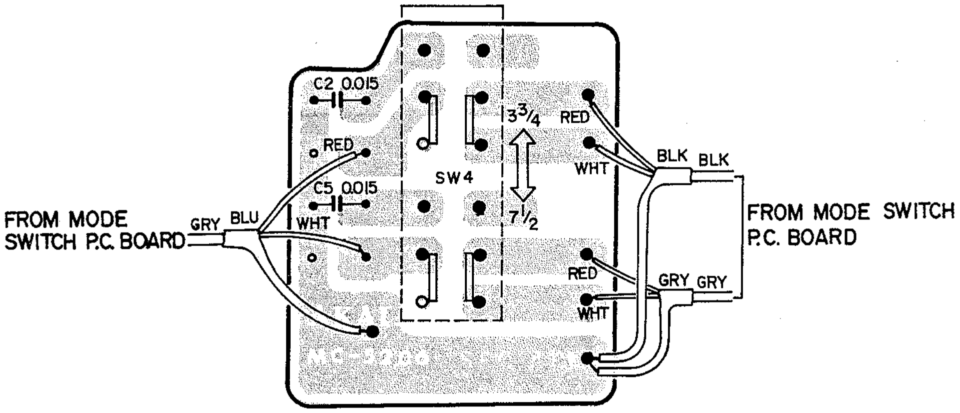
5. POWER SUPPLY P.C. BOARD MC-5208


TO CARTRIDGE JACK J7
FROM POWER TRANSFORMER
FROM POWER TRANSFORMER
ORG/BLK
VLT
VLT
ORG
ORG
AKAI MC-5208
R1 5W 100
38.1V
20V A.C.
20VA.C.
BLK
29VA.C.
29VAC
D3 10DC-1 (BLK)
C2 470/50
D1 10D1
D2 10D1
R3 4.7K
38.1V
BLK
TO C4
BLK
23.7V
36.3V
24.1V
TR1 2SC1098(L)(M)
R4 47
C1 470/50
R2 3W 18
D4 WZ-240
R6 82
WHT
TO OUT SW P.C. BOARD
C3 220/25
R5 82
WHT
RED/BLK
RED/BLK
RED/BLK
TO MODE SWITCH P.C. BOARD
TO MATE-N-LOCK P1
BLK
BLK
BLK
TO CARTRIDGE JACK J7
TO LAMP P.C. BOARD
TO MODE SWITCH P.C. BOARD
TO PL P.C. BOARD

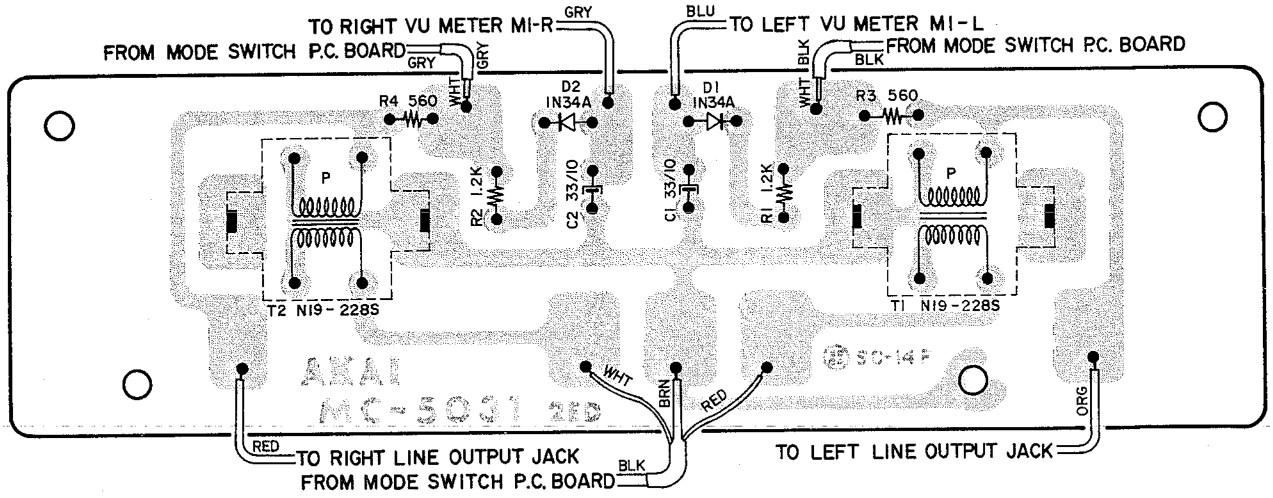
6. OSC. P.C. BOARD MC-5204


BLK
FROM VU METER
BLK
WHT/RED
FROM CARTRIDGE JACK J7
TR1,2 ····2SC971 (2)(3) RED
TR1
T1 OT-803
1.4V
18.7V
R3 3.3
-19.1V
R1 3W 150(K) -28.2V
ORG
TO MODE SWITCH P.C. BOARD
ORG
TO CARTRIDGE JACK J7
C2 0.01
R4 470
R5 4.7K
TR2
R2 3.3
C1 47/25
156VA.C.
54VA.C.
C3 0.01
1.4V
18.7V
-19.1V
C5 820P/500
C4 1500P/500
WHT
GRN
VLT
BLU
WHT
TO MODE SWITCH P.C. BOARD
WHT
TC2 70P
YLW
ORG
WHT
WHT
BLK
Y-GRN
TC1 70P
BLK
WHT
WHT
WHT
WHT
WHT
FROM MATE-N-LOCK P1
FROM POWER TRANSFORMER
TO MODE SWITCH P.C. BOARD

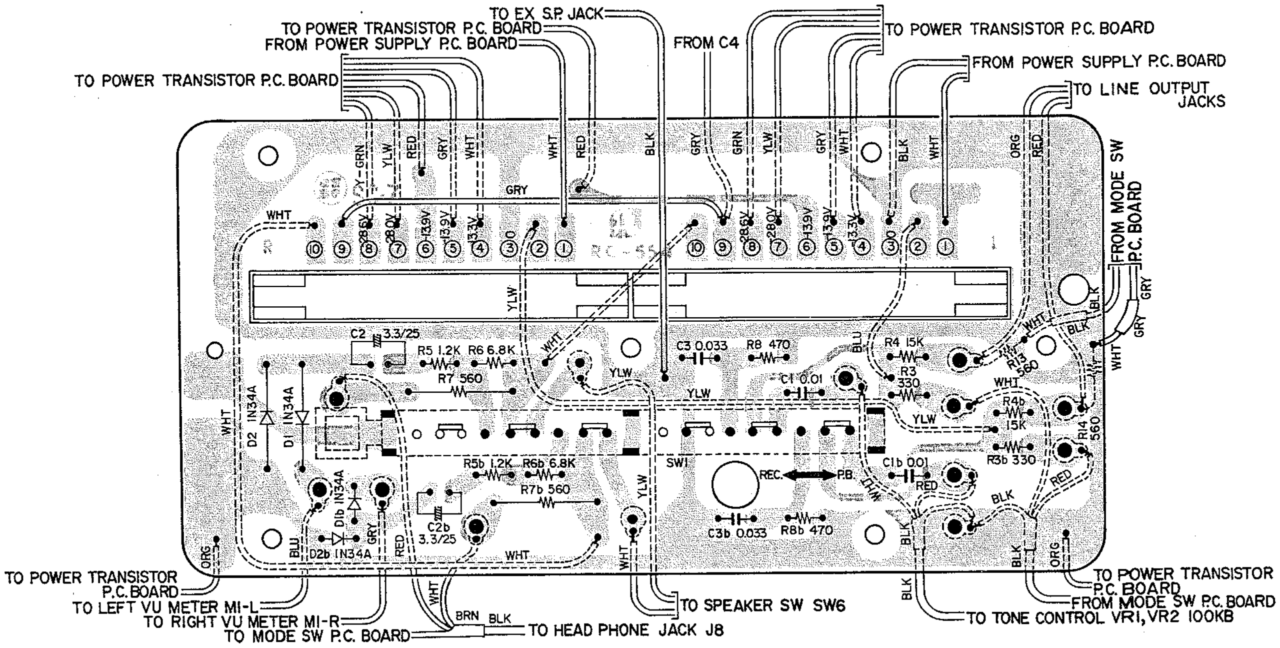
7. EQ. SW. P.C. BOARD MC-5206


C2 0.015
RED
C5 0.015
WHT
SW4
3¾
7½
RED
WHT
BLK
BLK
RED
WHT
GRY
GRY
FROM MODE SWITCH P.C. BOARD
FROM MODE SWITCH P.C. BOARD
GRY
BLU

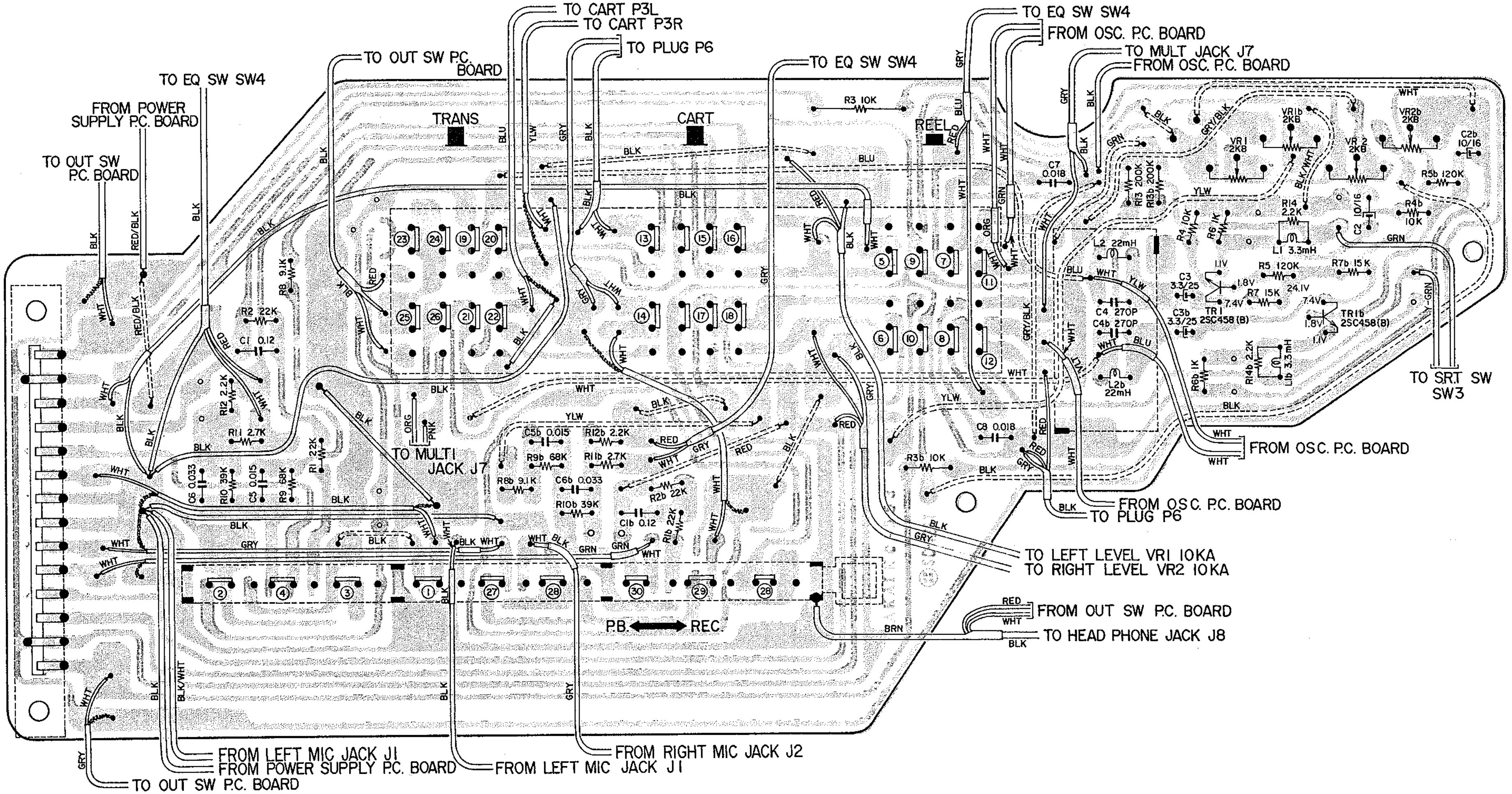
8. OUTPUT P.C. BOARD MC-5031 (Deck)


TO RIGHT VU METER MI-R
GRY
FROM MODE SWITCH P.C. BOARD
GRY
WHT
BLU
TO LEFT VU METER MI-L
BLK
FROM MODE SWITCH P.C. BOARD
BLK
WHT
R4 560
D2 IN34A
D1 IN34A
R3 560
R2 1.2K
C2 33/10
C1 33/10
R1 1.2K
P
P
T2 N19-228S
T1 N19-228S
AKAI
MC-5031
SC-14F
WHT
BRN
RED
ORG
RED
TO RIGHT LINE OUTPUT JACK
BLK
FROM MODE SWITCH P.C. BOARD
TO LEFT LINE OUTPUT JACK

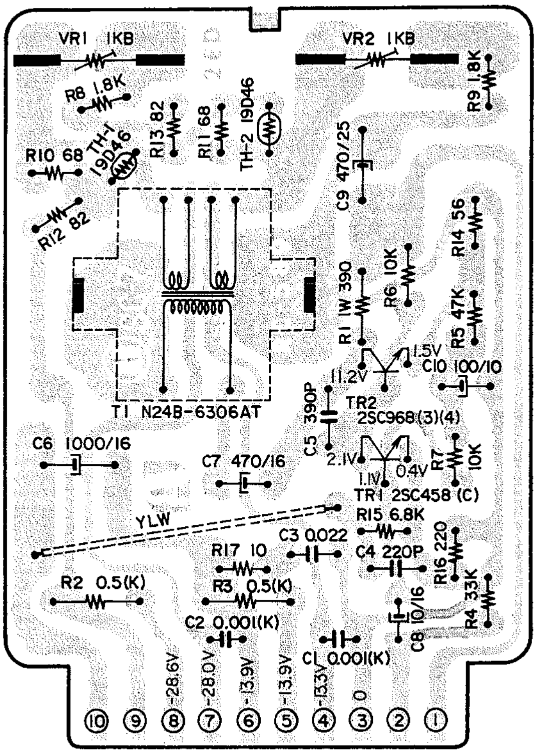
9. OUT SWITCH P.C. BOARD RC-554


TO EX S.P. JACK
TO POWER TRANSISTOR P.C. BOARD
FROM POWER SUPPLY P.C. BOARD
TO POWER TRANSISTOR P.C. BOARD
FROM C4
TO POWER TRANSISTOR P.C. BOARD
FROM POWER SUPPLY P.C. BOARD
TO LINE OUTPUT JACKS
Y-GRN
YLW
RED
GRY
WHT
WHT
RED
BLK
GRY
GRN
YLW
GRY
WHT
BLK
WHT
ORG
RED
GRY
WHT
28.6V
28.0V
13.9V
13.9V
13.3V
0
28.6V
28.0V
13.9V
13.9V
13.3V
0
⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
RC-554
FROM MODE SW P.C. BOARD
BLK
GRY
YLW
C2 3.3/25
R5 1.2K
R6 6.8K
R7 560
WHT
YLW
C3 0.033
R8 470
BLU
R4 15K
R3 330
C1 0.01
YLW
WHT
BLK
GRY
WHT
R13 560
WHT
R4b 15K
YLW
R14 560
R3b 330
WHT
D2 IN34A
D1 IN34A
R5b 1.2K
R6b 6.8K
R7b 560
SW1
REC.
P.B.
C1b 0.01
RED
BLK
RED
YLW
C2b 3.3/25
D1b IN34A
D2b IN34A
BLU
GRY
RED
WHT
C3b 0.033
R8b 470
WHT
BLK
BLK
ORG
ORG
TO POWER TRANSISTOR P.C. BOARD
TO LEFT VU METER MI-L
TO RIGHT VU METER MI-R
TO MODE SW P.C. BOARD
WHT
BRN
BLK
TO HEAD PHONE JACK J8
TO SPEAKER SW SW6
BLK
TO TONE CONTROL VR1, VR2 100KB
TO POWER TRANSISTOR P.C. BOARD
FROM MODE SW P.C. BOARD

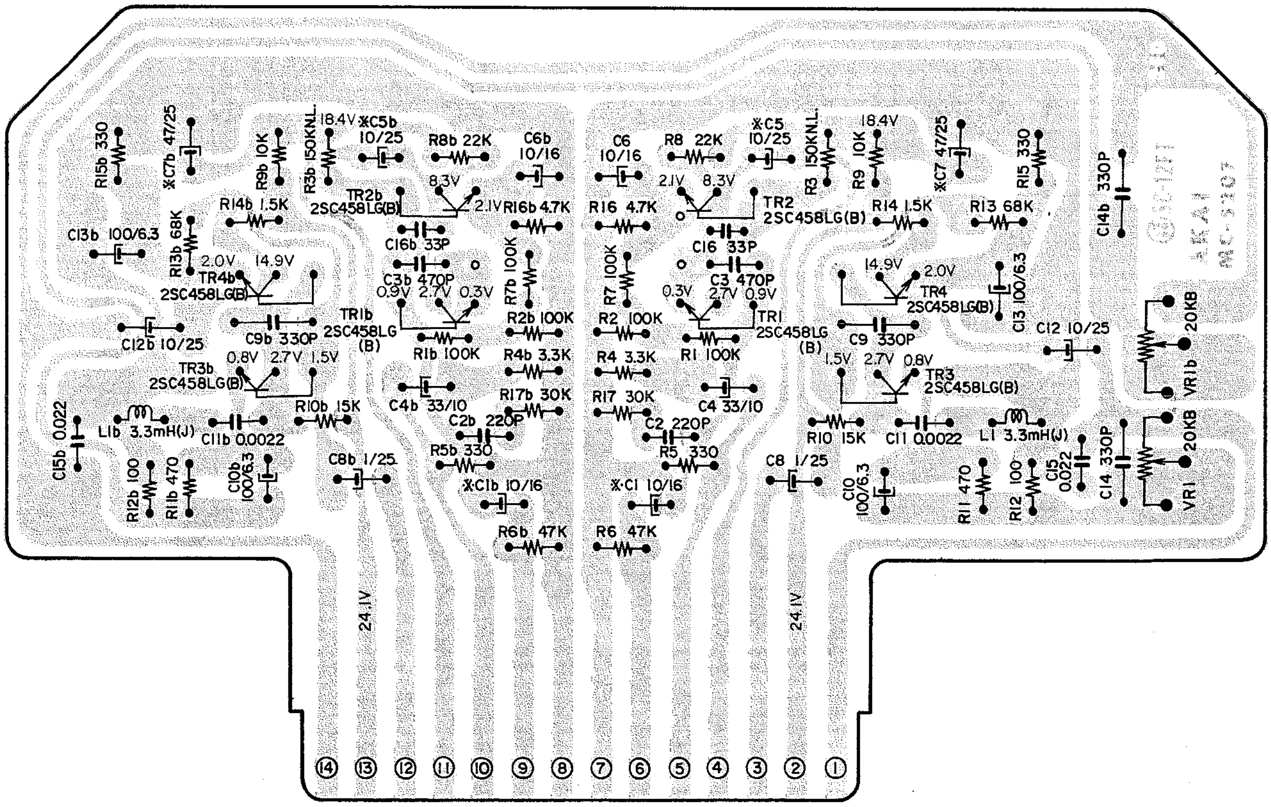
10. MODE SW. P.C. BOARD RC-553


TO CART P3L
TO CART P3R
TO PLUG P6
TO OUT SW P.C. BOARD
TO EQ SW SW4
FROM POWER SUPPLY P.C. BOARD
TO OUT SW P.C. BOARD
TO EQ SW SW4
TO EQ SW SW4
FROM OSC. P.C. BOARD
TO MULT JACK J7
FROM OSC. P.C. BOARD
TRANS
CART
REEL
R3 10K
C7 0.018
R13 200K
R13b 200K
VR1 2K8
VR1b 2K8
VR 2 2K8
VR2b 2K8
C2b 10/16
R5b 120K
R4b 10K
R14 2.2K
L1 3.3mH
C2 10/16
R4 10K
R6 1K
L2 22mH
C3 3.3/25
C3b 3.3/25
R5 120K
R7 15K
R7b 15K
TR1 2SC458 (B)
TR1b 2SC458 (B)
C4 270P
C4b 270P
L2b 22mH
R6b 1K
R14b 2.2K
L1b 3.3mH
TO SRT SW SW3
FROM OSC. P.C. BOARD
FROM OSC. P.C. BOARD
TO PLUG P6
TO LEFT LEVEL VR1 10KA
TO RIGHT LEVEL VR2 10KA
FROM OUT SW P.C. BOARD
TO HEAD PHONE JACK J8
C8 0.018
R3b 10K
R2 22K
C1 0.12
R8 9.1K
R12 2.2K
R11 2.7K
R1 22K
C6 0.033
R10 39K
C5 0.015
R9 68K
TO MULTI JACK J7
C5b 0.015
R12b 2.2K
R9b 68K
R11b 2.7K
R8b 9.1K
C6b 0.033
R10b 39K
R2b 22K
C1b 0.12
R1b 22K
P.B.
REC.
FROM LEFT MIC JACK J1
FROM POWER SUPPLY P.C. BOARD
TO OUT SW P.C. BOARD
FROM LEFT MIC JACK J1
FROM RIGHT MIC JACK J2
BLK
WHT
GRY
RED
BLU
YLW
GRN
ORG
PNK
BRN
RED/BLK
BLK/WHT
GRY/BLK
1.1V
1.8V
7.4V
24.1V

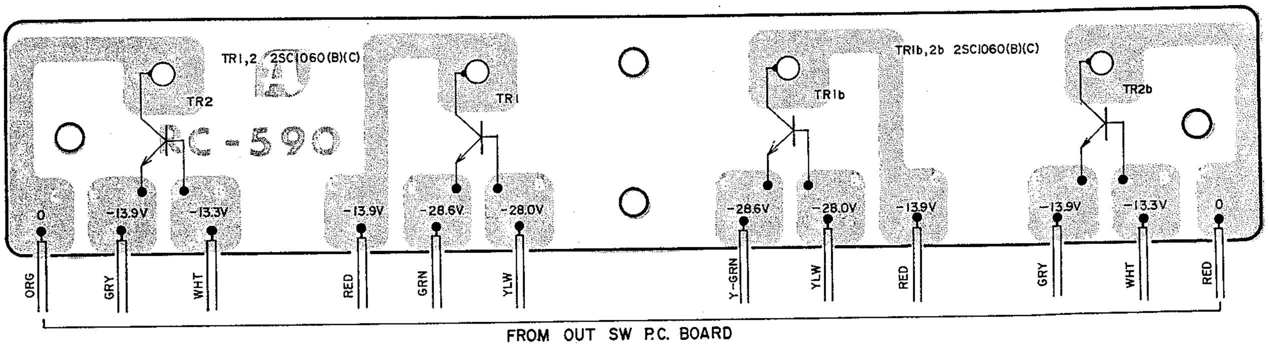
11. POWER AMP. P.C. BOARD RC-589


VR1 1KB
VR2 1KB
R8 1.8K
R13 82
R11 68
TH-2 19D46
R9 1.8K
R10 68
TH-1 19D46
C9 470/25
R12 82
R14 56
R6 10K
R1 1W 390
R5 47K
1.5V
11.2V
C10 100/10
C5 390P
TR2 2SC968(3)(4)
T1 N24B-6306AT
C6 1000/16
C7 470/16
2.1V
R7 10K
1.1V
0.4V
TR1 2SC458(C)
R15 6.8K
YLW
C3 0.022
R17 10
C4 220P
R16 220
R2 0.5(K)
R3 0.5(K)
C8 10/16
R4 33K
C2 0.001(K)
C1 0.001(K)
-28.6V
-28.0V
-13.9V
-13.9V
-13.3V
0
⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①

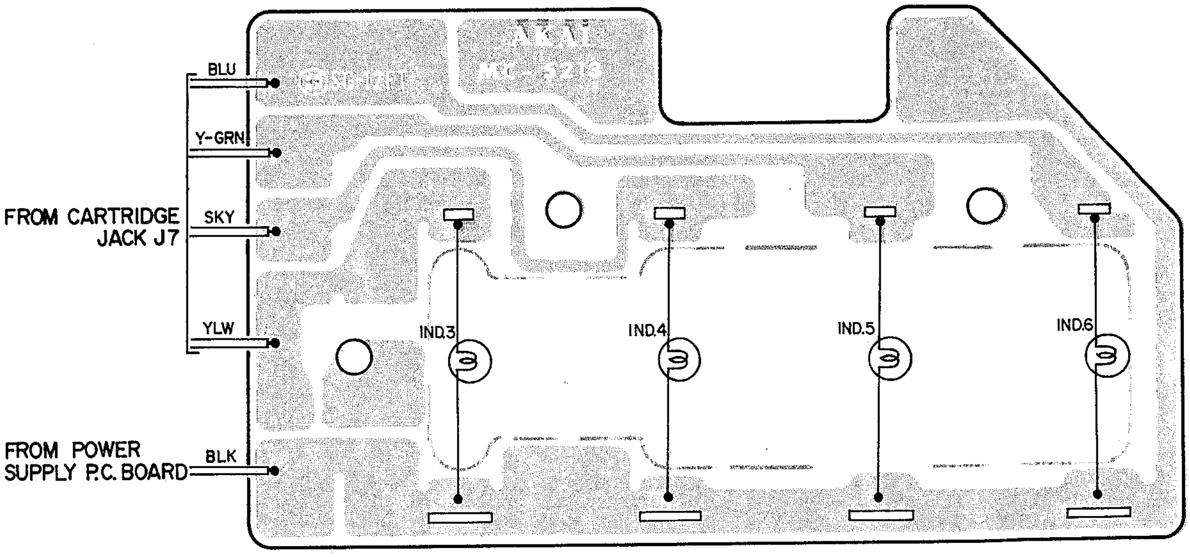
12. PRE AMP. P.C. BOARD MC-5207


R15b 330
※C7b 47/25
R9b 10K
R3b 150KN.L.
18.4V
※C5b 10/25
R8b 22K
C6b 10/16
C6 10/16
R8 22K
※C5 10/25
R3 150KN.L.
18.4V
R9 10K
※C7 47/25
R15 330
C14b 330P
AKAI
MC-5207
TR2b 2SC458LG(B)
8.3V
2.1V
R16b 4.7K
R14b 1.5K
R16 4.7K
2.1V
8.3V
TR2 2SC458LG(B)
R14 1.5K
R13 68K
C13b 100/6.3
R13b 68K
C16b 33P
C16 33P
2.0V
14.9V
TR4b 2SC458LG(B)
C3b 470P
0.9V 2.7V 0.3V
R7b 100K
R7 100K
0.3V 2.7V 0.9V
C3 470P
14.9V
2.0V
TR4 2SC458LG(B)
C13 100/6.3
TR1b 2SC458LG (B)
R2b 100K
R2 100K
TR1 2SC458LG (B)
C12b 10/25
C9b 330P
C9 330P
C12 10/25
VR1b 20KB
TR3b 2SC458LG(B)
0.8V 2.7V 1.5V
R1b 100K
R4b 3.3K
R4 3.3K
R1 100K
1.5V 2.7V 0.8V
TR3 2SC458LG(B)
C15b 0.022
L1b 3.3mH(J)
C11b 0.0022
R10b 15K
C4b 33/10
R17b 30K
R17 30K
C4 33/10
R10 15K
C11 0.0022
L1 3.3mH(J)
C2b 220P
C2 220P
R5b 330
R5 330
C8b 1/25
C8 1/25
R12b 100
R11b 470
C10b 100/6.3
※C1b 10/16
※C1 10/16
C10 100/6.3
R11 470
R12 100
C15 0.022
C14 330P
VR1 20KB
R6b 47K
R6 47K
24.1V
24.1V
⑭ ⑬ ⑫ ⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①

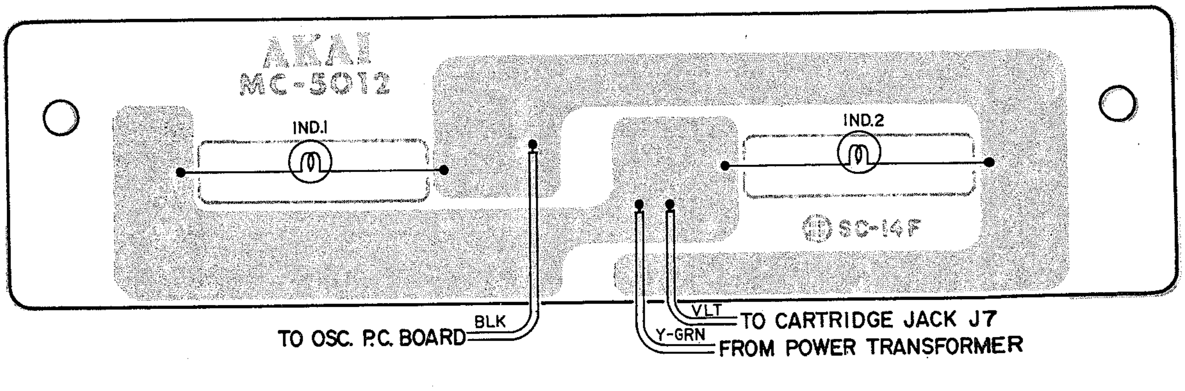
13. POWER TR. P.C. BOARD RC-590


TR1,2 2SC1060(B)(C)
TR2
RC-590
TR1
TR1b,2b 2SC1060(B)(C)
TR1b
TR2b
0
-13.9V
-13.3V
-13.9V
-28.6V
-28.0V
-28.6V
-28.0V
-13.9V
-13.9V
-13.3V
0
ORG
GRY
WHT
RED
GRN
YLW
Y-GRN
YLW
RED
GRY
WHT
RED
FROM OUT SW P.C. BOARD

14. LAMP P.C. BOARD MC-5213


AKAI
MC-5213
SC-12FT
BLU
Y-GRN
FROM CARTRIDGE JACK J7
SKY
YLW
IND.3
IND.4
IND.5
IND.6
FROM POWER SUPPLY P.C. BOARD
BLK

15. P.L. P.C. BOARD MC-5012


AKAI
MC-5012
IND.1
IND.2
SC-14F
TO OSC. P.C. BOARD
BLK
VLT
TO CARTRIDGE JACK J7
Y-GRN
FROM POWER TRANSFORMER

SECTION 2

PARTS LIST

TABLE OF CONTENTS

FIG. 1 GX HEAD BLOCK (MC-2) 38
FIG. 2 CARTRIDGE HEAD BLOCK (MC-2) 40
FIG. 3 REEL MOTOR & REEL TABLE BLOCK 42
FIG. 4 MAIN MOTOR (HM2-16MC) BLOCK 44
FIG. 5 FLYWHEEL BLOCK 45
FIG. 6 SWITCH LEVER/HARNESS BLOCK 46
FIG. 7 MECH. ASSEMBLY BLOCK 48
FIG. 8 REC. LEVER BLOCK 51
FIG. 9 CART. P.C. BOARD (MC-3202) BLOCK 52
FIG. 10 SPARK QUENCHER P.C. BOARD (MC-2202) BLCOK 53
FIG. 11 RESISTOR P.C. BOARD (MC-2201) BLOCK 53
FIG. 12 SYS. CON. P.C. BOARD (MC-2205) BLOCK 54
FIG. 13 POWER SUPPLY P.C. BOARD (MC-5208) BLOCK 55
FIG. 14 OSC. P.C. BOARD (MC-5204) BLOCK 56
FIG. 15 EQUALIZER SW. (MC-5206) BLOCK 56
FIG. 16 OUT P.C. BOARD (MC-5031) BLOCK (1820D) 57
FIG. 17 OUT SW. (RC-554) BLOCK 58
FIG. 18 MODE SW. (RC-553) BLOCK 59
FIG. 19 MAIN AMP. P.C. BOARD (RC-589) BLOCK 60
FIG. 20 PRE-AMP. P.C. BOARD (MC-5207) BLOCK 61
FIG. 21 AMPLIFIER ASSEMBLY BLOCK 62
FIG. 22 WOOD CASE BLOCK 65
FIG. 23 FINAL ASSEMBLY BLOCK 66
INDEX 67

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read List

—The reference number corresponds with illustration or photo number of that particular parts list.

—This number corresponds with the Figure Number.

—This number corresponds with the individual parts index number in that figure.

—A small "x" indicates the inability to show that particular part in the Photo or Illustration.

12-115x

—Schematic Diagram Number of individual manufactured part.
(not required for parts order)

—Quantity of particular part required.

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		FLYWHEEL BLOCK #13		
12-115x	800425	Flywheel Block Assy. Comp.	RDG# 13	1
12-116	244506	Flywheel Only	RD-233	1
12-117x	244754	Felt, Flywheel	RD-275	1
12-118	251324	Main Metal Case	RD-236	1
12-119	253080	Main Metel	RD-237	1

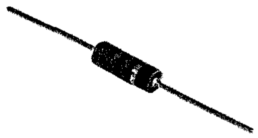
4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of Components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.

   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

ELECTRICAL PARTS TABLE

Because the indication of resistors and capacitors in the P.C. Board photos are being eliminated, please confirm parts name and shape by comparing them with the parts shown in this table.

1

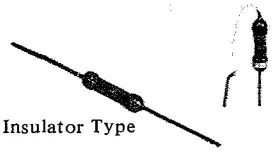


Solid Resistor

2

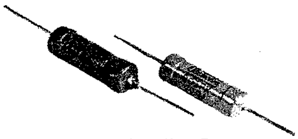
Stopper Type

Insulator Type



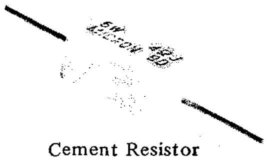
Carbon Resistor

3



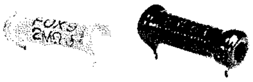
Metal Oxide Film Resistor

4



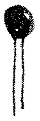
Cement Resistor

5



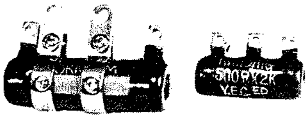
Wire-Wound Resistor

6



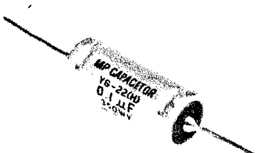
Thermister

7



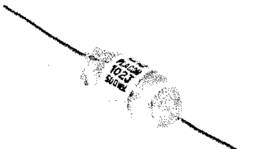
Enamel Resistor

1



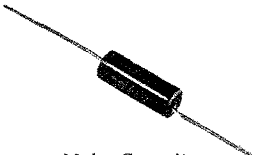
MP Capacitor (Tubular Type)

2



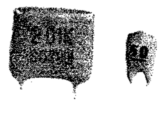
Plastic Capacitor

3



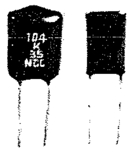
Mylar Capacitor

4



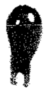
VFM (Hi-Q) Capacitor

5



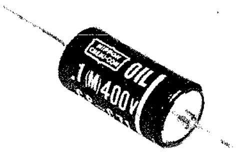
Mylar Capacitor

6



Tantalum Capacitor

7

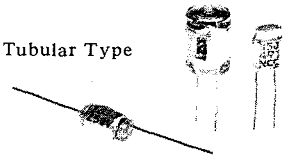


Oil Capacitor (Tubular Type)

8

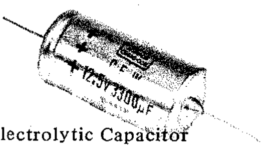
Vertical Type

Tubular Type



Styrol Capacitor

9

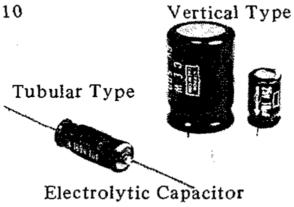


Electrolytic Capacitor
(Tubular Type)

10

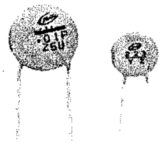
Vertical Type

Tubular Type



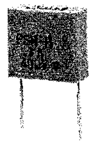
Electrolytic Capacitor

11



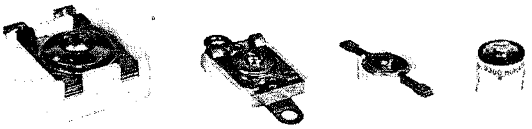
Ceramic Capacitor

12



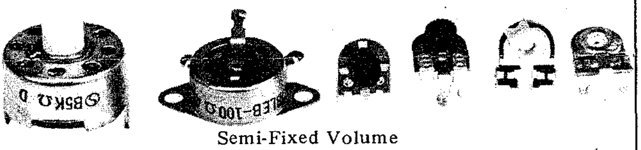
Metalized Mylar
(Paper) Capacitor

13



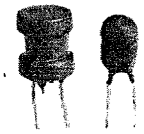
Trimmer Condenser

VR



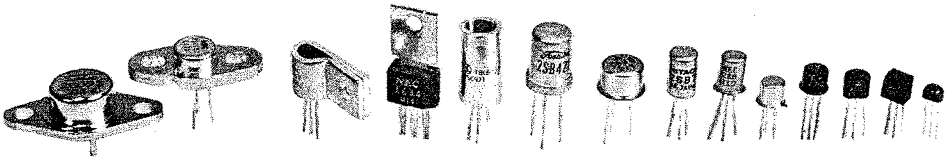
Semi-Fixed Volume

L



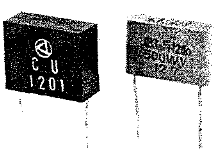
Ferri Inductor

TR



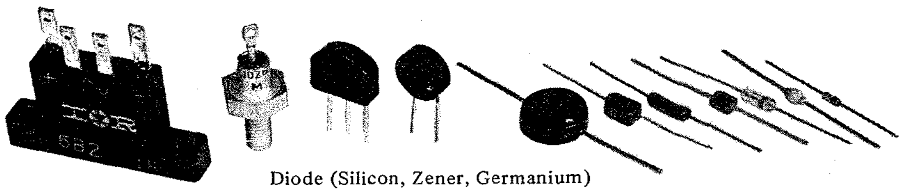
Transistor

CR



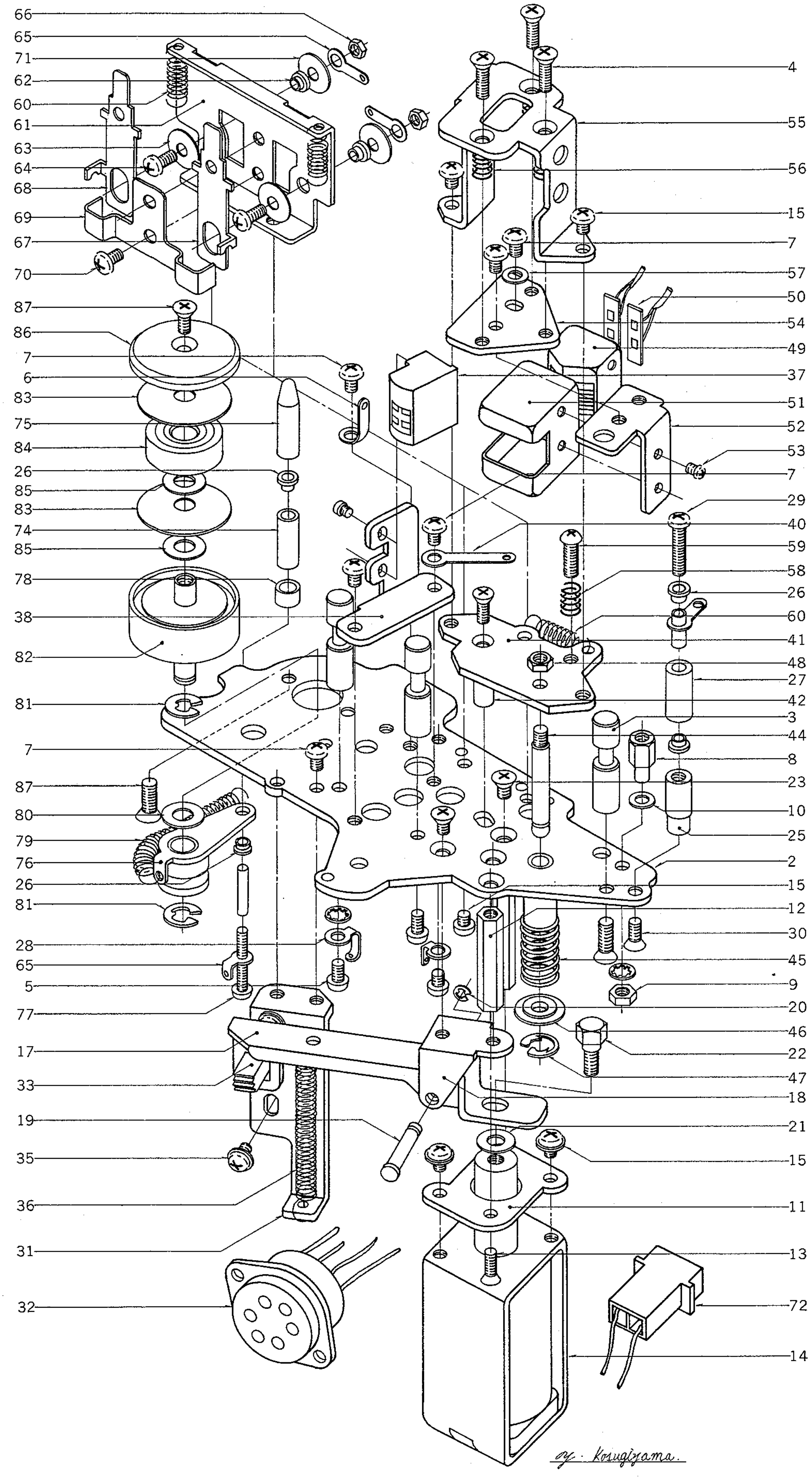
Spark Quencher

D



Diode (Silicon, Zener, Germanium)

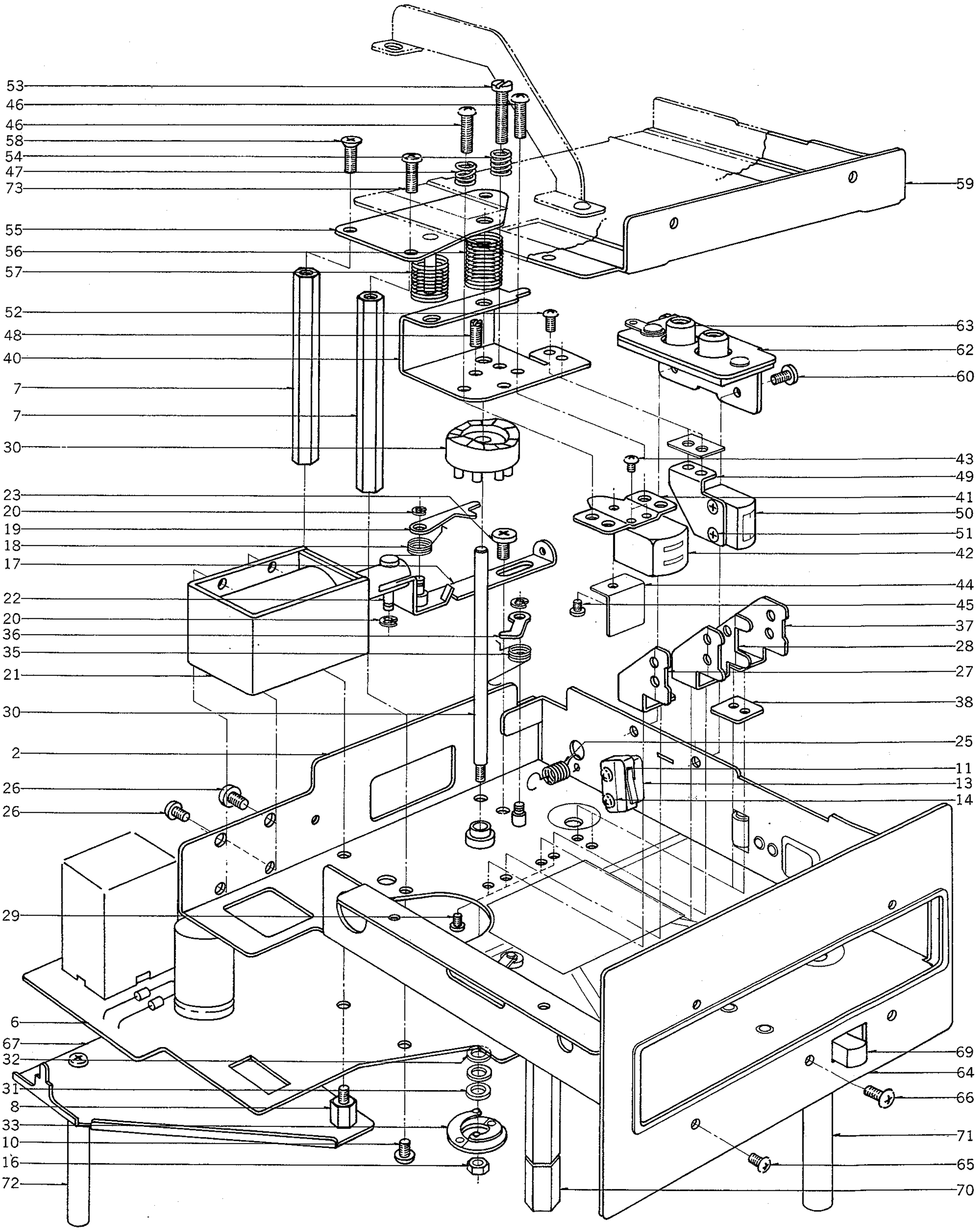
FIG. 1 ILLUSTRATION OF GX HEAD BLOCK (MC-2)


66
65
71
62
60
61
63
64
68
69
67
70
87
86
7
6
83
75
84
26
85
83
74
85
78
38
82
81
7
87
80
79
76
26
81
28
65
5
77
17
33
19
35
36
31
32
4
55
56
15
7
57
50
54
49
37
51
52
53
7
29
40
59
58
26
60
41
48
27
42
3
44
8
23
10
25
2
15
12
30
45
9
20
46
22
47
18
21
15
11
13
72
14
Y. Kosugiyama.

GX HEAD BLOCK (MC-2)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
1-1x	BH555390	GX Head Block Comp.	MC-2	1
1-2	HZ541091	Head Base MC-2, w/metal	MC-0201	1
1-3	HZ317597	Tape Guide A, MR	MR-4	3
1-4	ZS414033	Screw, countersunk head 3x8		4
1-5	ZS413741	Screw, binding head 3x8		2
1-6	ZW562487	Earth Lug M4		1
1-7	ZS323728	Screw, binding head 3x5		8
1-8	HZ541170	Panel Support	MC-0209	1
1-9	ZW273756	Nut M3		1
1-10	ZW273745	Spring Washer M3		1
1-11	HZ317698	Plunger Base	RD-21	1
1-12	HZ317700	Plunger Retaining Prop	MR-6	2
1-13	ZS432685	Screw,countersunk head 3x6 D=5		2
1-14	EP318115	Plunger Solenoid RGA 10143	44-1-25	1
1-15	ZS413223	Screw, binding head 3x5, w/washer		6
1-16x	HZ474153	Plunger Insulator Plate	MC-0005	1
1-17	HL317676	Plunger Lever	MR-16	1
1-18	HZ317687	Lever Support	MR-15	1
1-19	MH257477	Connecting Pin	RD-211	1
1-20	ZW270088	'E' Ring 1.9M	6-1-9	1
1-21	ZW450753	Washer (Nylon)D4.1x9x1t		1
1-22	ZS317711	Plunger Bolt	MR-17	1
1-23	ZS329016	Screw, countersunk head 3x8		2
1-24x	ZS559056	Screw, countersunk head 3x6		2
1-25	HZ455962	Sensing Collar B	MC-1019	1
1-26	HZ317632	Insulator Collar A	MR-36	4
1-27	HZ455973	Sensing Collar A	MC-1018	1
1-28	ZW273778	Earth Lug M3		2
1-29	ZW554916	Screw, binding head 2.3x20		1
1-30	ZS554927	Screw, countersunk head 2.3x5		1
1-31	HZ317733	Slide SW. Base	MR-18	1
1-32	EJ365703	Socket 6P	31-1-67	1
1-33	ES317744	Slide SW. SL-242B4V	25-3-28	1
1-34x	ZW317801	Toothed Lock Washer M2.6		2
1-35	ZS372183	Screw, round head 2.6x5		2
1-36	ZG317766	Plunger Lever Spring	MR-19	1
1-37	HE563220	ERASE HEAD E4-260		1
1-38	HZ531540	Erase Head Base B	LF-0002	1
1-39x	ZS477876	Screw, pan head 2x3		2
1-40	ZW273767	Earth Lug D3x20L		2
1-41	HZ531551	Base Plate B	MR-10	1
1-42	HZ298012	4-TR Hold-down Base Guide	3A-69	1
1-43x	ZS554938	Screw, countersunk head 2.3x6		1
1-44	HZ541135	PH Shaft	MC-0205	1
1-45	ZG317902	PH Spring	MR-13	1
1-46	ZW317913	Spring Holder	MR-12	1
1-47	ZW290283	'U' Ring 2.85M	6-1-1	1
1-48	ZW554940	Nut M3		1
1-49	HP462554	PB. HEAD P4-201		1
1-50	EA463206	Terminal P.C. Board A	RD-A36	2
1-51	HZ411017	Head Shield Case	LF-0005	1
1-52	HZ541124	Head Mt. Angle	MC-0204	1
1-53	ZS460440	Screw, pan head 2x4		2
1-54	HZ541113	Angle Base	MC-0203	1
1-55	HZ541102	Base Angle	MC-0202	1
1-56	ZG317968	Angle Spring	MR-14	3
1-57	ZW430863	Washer (SPC)D3.3x6x0.5t		1
1-58	ZG466312	Angle Adjust Spring E	BS-0018	1
1-59	ZS425114	Screw, round head 3x10		1
1-60	ZG317777	Pull Spring	MR-47	3
1-61	HZ541146	D.S Base	MC-0206	1
1-62	MZ316822	Insulator Collar B	MR-225	2
1-63	HZ542092	Insulated Washer	MC-0213	2
1-64	ZS464692	Screw, binding head 2.3x6		2
1-65	ZW316800	Earth Lug M2.6		3
1-66	ZW273688	Nut M2.3		2
1-67	HL541168	D.S Lever A	MC-0208	1
1-68	HL542687	D.S Lever B	MC-0208	1
1-69	HL541157	D.S Lever Support	MC-0207	1
1-70	ZS417137	Screw, binding head 3x4		2
1-71	ZW563218	Washer (Bake)D3.2x10xlt		2
1-72	EJ452340	Mate-N-Lock Cap Housing 2P 170924-1	52-1-17	1
1-73x	EJ554951	Pin Contact 60510-1	52-1-1	2
1-74	HZ541181	Sensing Post B	MC-0210	1
1-75	HZ318047	Sensing Collar A	MR-35	1
1-76	HZ318036	Tension Arm, w/pulley	MR-37	1
1-77	ZS554962	Screw, pan head 2.3x25		1
1-78	HZ467010	Cushion Rubber, MC	MC-0004	1
1-79	ZG317114	Tension Lever Spring	MR-39	1
1-80	ZW259885	Washer (PBP)D5.1x10.3x0.1t		1
1-81	ZW270123	'E' Ring 4M	6-1-9	2
1-82	HZ547751	Tape Guide A, w/shaft	MU-0015	1
1-83	ZW231805	Tape Guide Washer (large)	3A-356	2
1-84	MV248117	Bearing 635AHZZ-CIE-B32		1
1-85	ZW326463	Washer (PBP)D5.1x10.3x0.2t		1
1-86	HZ317092	Tape Guide Table B	MR-32	1
1-87	ZS414033	Screw, countersunk head 3x8		3

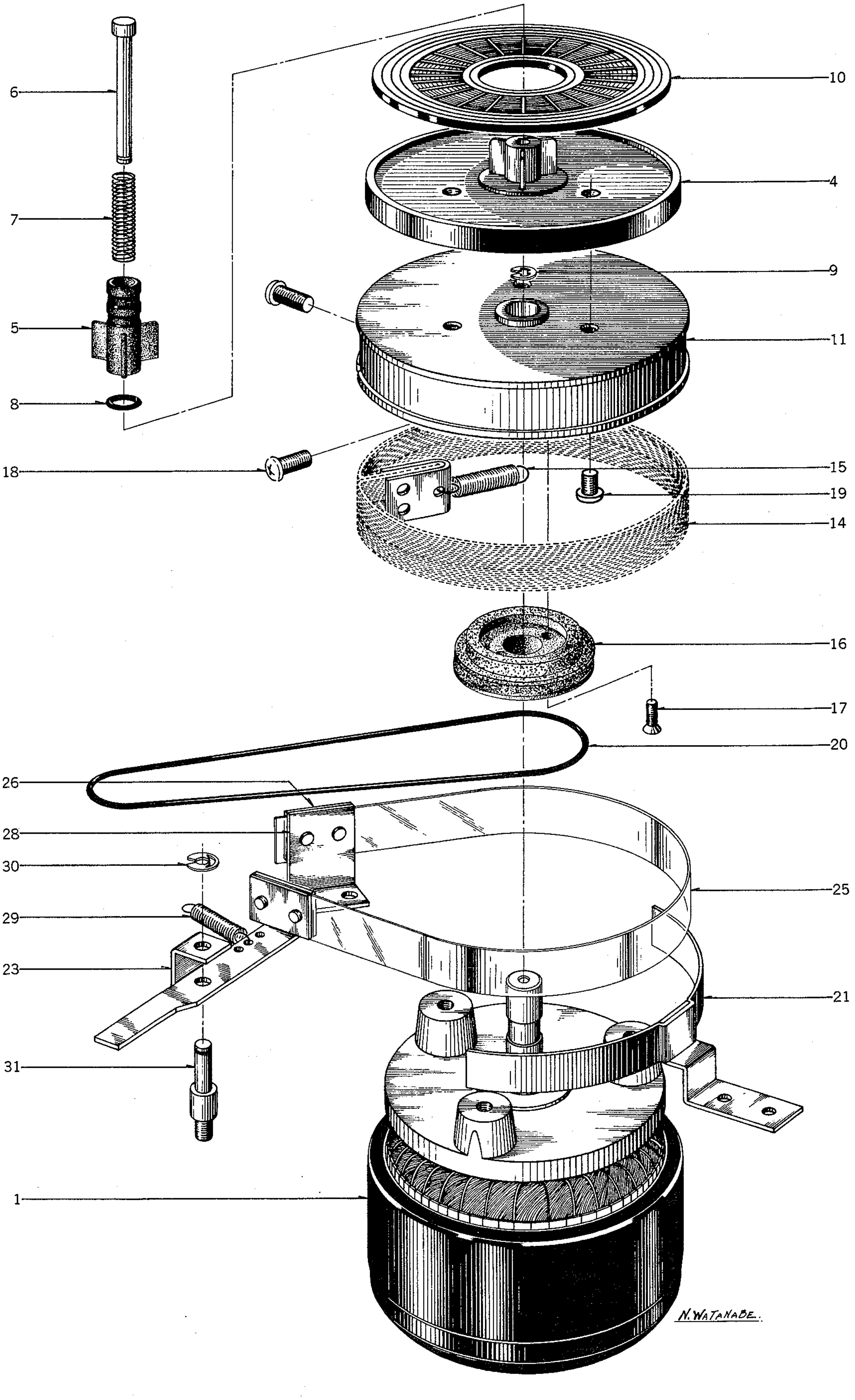
FIG. 2 ILLUSTRATION OF CARTRIDGE HEAD BLOCK (MC-2)


53
46
46
58
54
47
73
55
56
57
52
48
40
7
7
30
23
20
19
18
17
22
20
36
35
21
30
2
26
26
29
6
67
32
31
8
33
10
16
72
59
63
62
60
43
49
41
50
51
42
44
45
37
28
27
38
25
11
13
14
69
64
66
71
65
70

CARTRIDGE HEAD BLOCK (MC-2)

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
2-1x	BH555401	Cartridge Head Block Comp.(MC-2)		1
2-2	HZ248073	Base Frame Comp.	RC-1	1
2-3x	HZ399317	Side Plate Spring A Comp.(Side)	RC-139	1
2-4x	HZ399328	Side Plate Spring B Comp.(Base)	RC-139	1
2-5x	HZ222658	Side Bush (Nylon)	RC-25	1
2-6	BA555412	Cart. P.C. Board(MC-3202)Comp.		1
2-7	HZ225213	Hold-down Table Prop	RC-68	3
2-8	ZS308597	Holder Screw	RC-82	1
2-9x	ZW273802	Toothed Lock Washer M3		1
2-10	ZS413818	Screw, round head 3x8		2
2-11	ES250020	Micro SW. S-1AL	25-1-9	1
2-12x	HZ243191	Pin Contact 60511-1	52-1-1	3
2-13	HZ225573	SW. Insulator Table	3A-129	1
2-14	ZS303625	Screw, pan head 2.3x16		2
2-15x	ZW269785	Toothed Lock Washer M2.3		5
2-16	ZW273688	Nut M2.3		3
2-17	HL246813	Pull Lever, w/boss A	RC-18	1
2-18	ZG244394	Hook Spring	RC-39	1
2-19	HZ218362	Crown Hook	RC-21	1
2-20	ZW270088	'E' Ring 1.9M	6-1-9	3
2-21	EP369685	Plunger Solenoid 840N 18Ω69L	44-1-28	1
2-22	ZW303682	Plunger Lever Pin	RX-291	1
2-23	ZS220061	Graduated Screw (small)	RC-19	1
2-24x	ZW556650	Nut M2.3		1
2-25	ZG256926	Lever Spring	RC-38	1
2-26	ZW560182	ISO Screw, pan head 3x5		4
2-27	HZ231862	Tape Guide A	RC-71	1
2-28	HZ231917	Tape Guide D	RC-74	1
2-29	ZS202296	Screw, round head 2.3x5		4
2-30	HZ218272	Crown Cam, w/shaft	RC-11A	1
2-31	ZW259738	Washer(Polyslider)D4.1x7x0.25t		1
2-32	ZW345442	Washer(Nylon)D4.2x9x1t		2
2-33	HZ390960	SW. Base Comp.	RC-84	1
2-34x	ZW259650	Washer (PBP)D3x5x0.2t		1
2-35	ZG226708	Stopper Spring	RC-40	1
2-36	HZ218327	Crown Stopper	RC-20	1
2-37	HZ223920	Tape Guide, Erase	RC-67	1
2-38	HZ229026	Insulator Bush	RC-77	1
2-39x	ZS202307	Screw, round head 2.3x6		2
2-40	HZ275567	Hold-down Base, RC (w/boss)	RC-64	1
2-41	HZ258456	Rec. Head Mt. Plate	RC-63	1
2-42	HP258265	REC./PB. HEAD P8-1	700441	1
2-43	ZS202353	Screw, round head 2x2		2
2-44	HZ303750	8T Head Back Shield	RC-78	1
2-45	ZS365940	Screw, binding head 2.3x3		1
2-46	ZS336868	Screw, round head 3x12		2
2-47	ZG303300	Angle Adjust Spring B	RD-55	1
2-48	ZS437883	Set Screw 3x8(cup/p.)		2
2-49	HZ224166	Erase Head Retaining Plate	RC-65	1
2-50	HE224122	ERASE HEAD E8-1	700756	1
2-51	ZS371777	Screw, countersunk head 2x3		2
2-52	ZS202285	Screw, round head 2.3x4		2
2-53	ZS256476	Lifter Screw	RC-10	1
2-54	ZG303761	ST Spring	RC-76	1
2-55	HZ253620	Metal Base, w/prop	RC-66	1
2-56	ZG309745	RC Hold-down Spring A	RC-69	1
2-57	ZG309756	Hold-down Spring B, RC	RC-69	1
2-58	ZS200417	Screw, countersunk head 3x6		2
2-59	HZ258030	Lower Frame, w/plate	RC-2	1
2-60	ZS447772	Tapping Screw #2 3x6(BR)		5
2-61x	ZW273778	Earth Lug M3		1
2-62	HZ437894	Jack Holder, 2P	MC-3002	1
2-63	EJ295953	Jack, 2P Pin	31-1-36	1
2-64	HZ479632	Gate (MC)	MC-0006	1
2-65	ZS464815	Tapping Screw #2 2.6x6(truss)		3
2-66	ZS304784	Screw, truss head 3x10		2
2-67	HZ540731	Cart. Holder	MC-3201	1
2-68x	ZW273756	Nut M3		1
2-69	ES227902	Slide SW. ESS-22C-NB	25-3-5	1
2-70	MH437635	Cart. Frame Prop B	MC-1002	1
2-71	MH305414	Cart. Frame Round Prop	RC-133	2
2-72	MH305460	Cart. Relay Prop	RC-135	1
2-73	ZS328577	Screw, binding head 3x8, w/washer		1

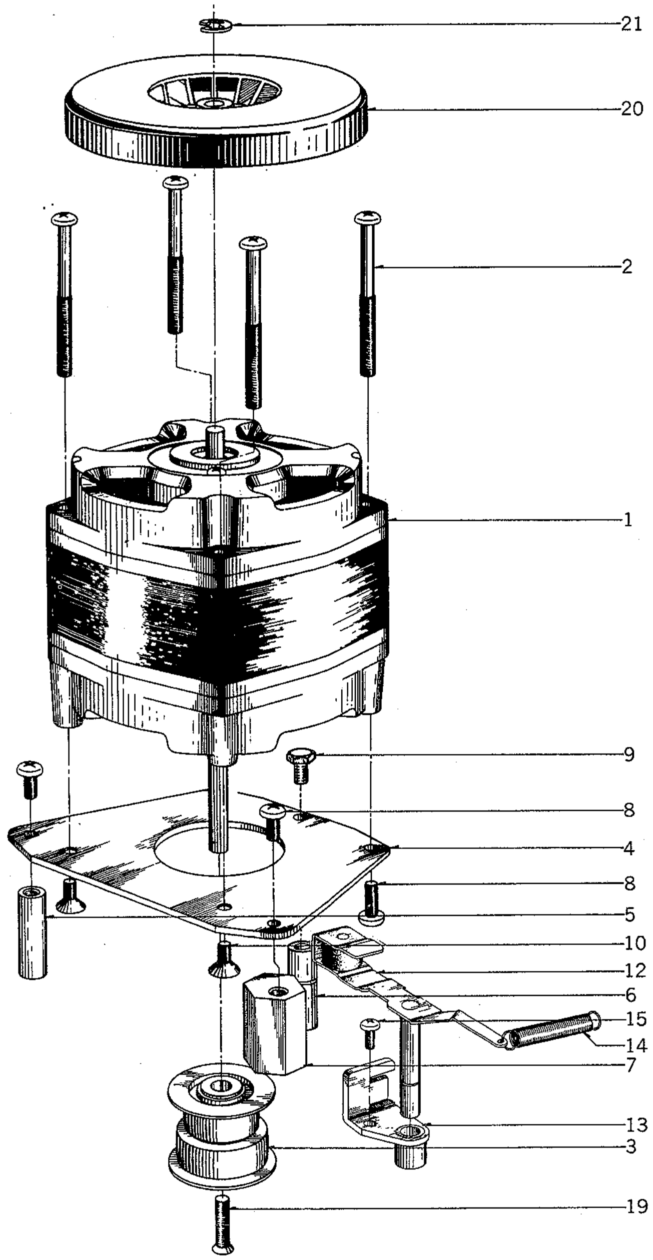
FIG. 3 ILLUSTRATION OF REEL MOTOR & REEL TABLE BLOCK


6
7
5
8
18
26
28
30
29
23
31
1
10
4
9
11
15
19
14
16
17
20
25
21
N. WATANABE.

REEL MOTOR & REEL TABLE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1	BM314741	Reel Motor (24XO-2) Block Comp.	MC,MS,KD	1
3-2x	BR317395	Supply Reel Table Block Comp.	MC,MU,MR	1
3-3x	BR448110	Take-up Reel Table Block Comp.	MC	1
3-4	MT317441	Reel Table, MR	MR-215	2
3-5	MT255420	Reel Retainer	3R-102	2
3-6	MS342000	Reel Shaft	3R-108	2
3-7	ZG255633	Reel Spring	3R-109	2
3-8	MT297663	3R 'O' Ring 2.9x1.65M	3R-139	2
3-9	ZW270088	'E' Ring 1.9M	6-1-9	2
3-10	MT317463	Reel Table Rubber, MR	MR-250	2
3-11	MT317452	Brake Drum (R) (Take-up)	MR-216	1
3-12x	MT325473	Brake Drum (L) (Supply)	MR-216	1
3-13x	ZW273778	Earth Lug M3		2
3-14	MT436860	Brake Cloth Comp.	MR-269	2
3-15	ZG317496	Felt Tension Spring	MR-260	2
3-16	MR426958	Counter Pulley (Take-up)	MS-6012	1
3-17	ZS433315	Screw, countersunk head 2.3x8 (Take-up)		2
3-18	ZS424056	Screw, pan head 4x10		4
3-19	ZS413785	Screw, binding head 3x12		6
3-20	MB527556	Counter Belt D93x1.5	ND-1022	1
3-21	MZ317406	Brake Band Guide, w/base	MR-120	2
3-22x	ZS323728	Screw, binding head 3x5		6
3-23	ML314976	Brake Lever A (Take-up)	MR-210	1
3-24x	ML396810	Brake Lever B (Supply)	KD-1038	1
3-25	MT314987	Brake Band	MR-213	2
3-26	MZ314998	Brake Band Retaining Plate	MR-212	4
3-27x	ZS417137	Screw, binding head 3x4		8
3-28	MZ315000	Brake Band Support	MR-214	2
3-29	ZG315011	Brake Lever Spring	MR-116	2
3-30	ZW290283	'U' Ring 2.85M	6-1-1	2
3-31	MH317373	Brake Lever Prop	MR-102	2
3-32x	ZW416698	Nut M4		2
3-33x	ZS427048	Screw, round head 3x3		2

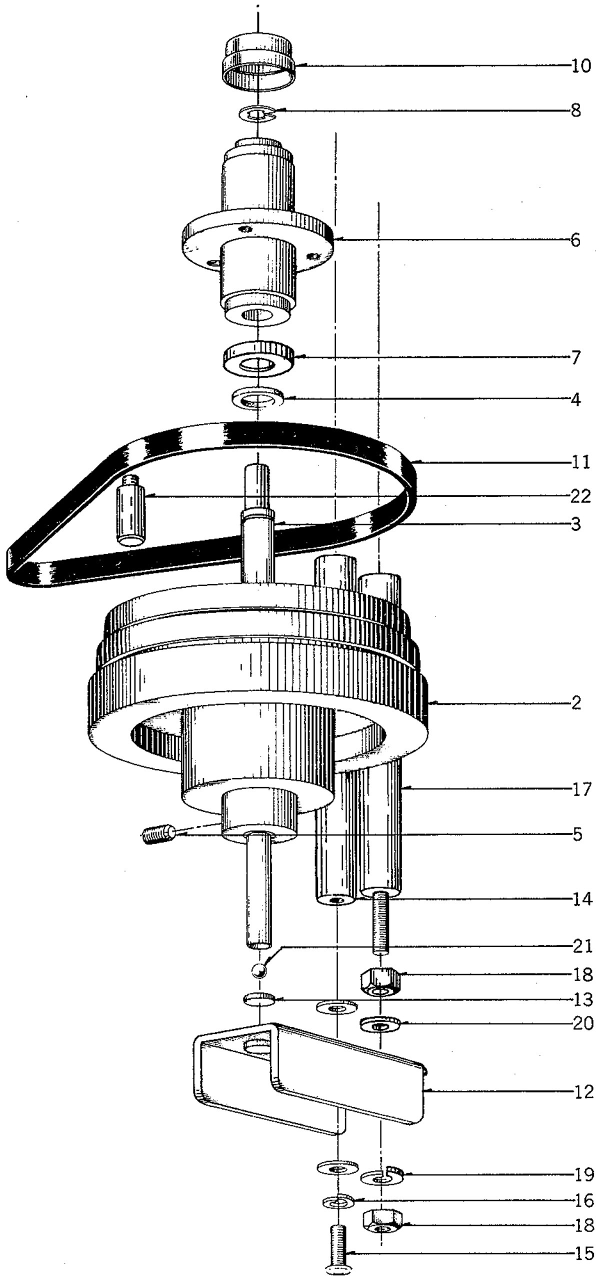
FIG. 4 ILLUSTRATION OF MAIN MOTOR (HM2-16MC) BLOCK



MAIN MOTOR (HM2-16MC) BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		MAIN MOTOR BLOCK		
4-1	BM555355	Main Motor (HM2-16MC) Block Comp.	MC-2	1
4-2	ZS520593	Screw, pan head 4x52, w/washer (15M)		4
4-3	MR540876	Motor Pulley	MC-7201	1
4-4	MZ316293	Motor Mt. Plate, MR	MR-717	1
4-5	MH254160	Motor Prop A	24X-730	1
4-6	MZ254182	Motor Prop B	24X-731	1
4-7	MH316304	Motor Prop, MR	MR-706	1
4-8	ZS424056	Screw, pan head 4x10		4
4-9	ZS272395	Motor Prop Retaining Screw,M-7	24X-732	1
4-10	ZS427026	Screw, countersunk head 4x10		2
		BELT CHANGE LEVER BLOCK		
4-11x	BL555344	Belt Change Lever Block Comp.	MC-2,MU	1
4-12	ML540990	Belt Change Lever, w/roller	MC-1207	1
4-13	ML541001	Belt Change Lever Stopper,w/metal	MC-1208	1
4-14	ZG217337	Belt Return Spring	4TR-224	1
4-15	ZS417150	Screw, pan head 4x6		1
4-16x	ZG217394	Belt Change Spring B	MH-125	1
4-17x	ZW260054	Washer (SUP)D6.1x10x0.25t		1
4-18x	ZW290283	'U' Ring 2.85M	6-1-1	1
4-19	ZS203016	Screw, oval countersunk head 3x15		1
4-20	ZS529108	Main Motor Fan	ND-7010	1
4-21	ZW270123	'E' Ring 4M	6-1-9	1

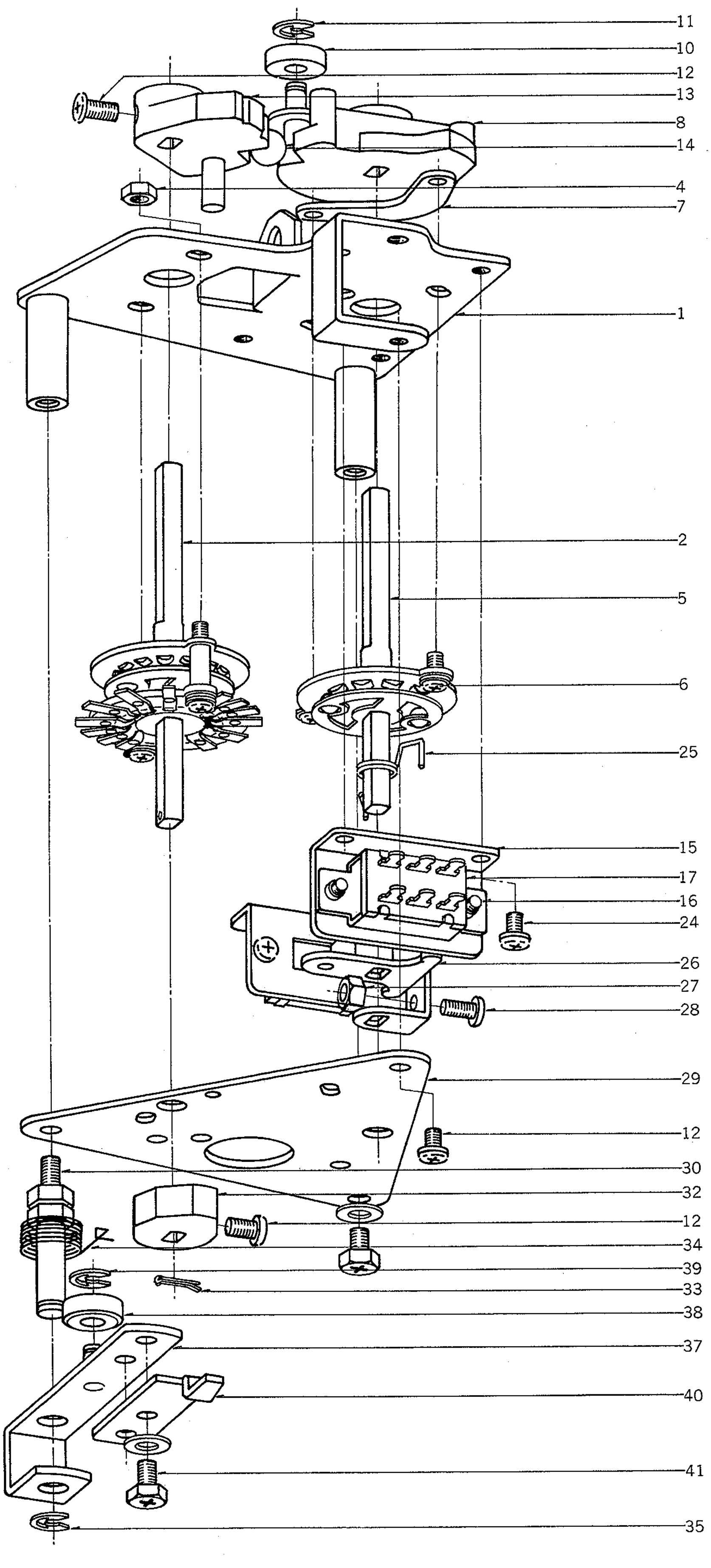
FIG. 5 ILLUSTRATION OF FLYWHEEL BLOCK



FLYWHEEL BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
5-1x	BF436961	Flywheel Block Comp.	MC	1
5-2	MI275692	Flywheel, RC	RC-103	1
5-3	MS437782	Main Shaft	MC-2005	1
5-4	ZW437804	Flywheel Thrust A D7.9x13x1t	101024	1
5-5	ZS373577	Set Screw,hexagon socket 5x6(flat/p.)		2
5-6	BZ437793	Main Case, MC Comp.	MC-2007	1
5-7	MZ446635	Thrust Cap, Main Metal B2	LF-2006	1
5-8	ZW244710	Flywheel Fixing Pin	900-250	1
5-9x	MZ244113	Felt D12.5x16x2t		1
5-10	MZ253113	Main Metal Cap B	MH-208	1
5-11	MB541012	Drive Belt (flat) D116.9x1.6x7	MC-1209	1
5-12	MZ437692	Flywheel Supporting Base, MC	MC-1012	1
5-13	ZW392681	Washer(Nylon)D8x1t(without Hole)		1
5-14	MH308575	Wheel Prop	RC-137	1
5-15	ZS413201	Screw, pan head 4x8		1
5-16	ZW273914	Spring Washer M4		2
5-17	MH308586	Wheel Screw Prop	RC-136	1
5-18	ZW413280	Inch Nut 1/4" (mountain 20)		2
5-19	ZW393232	Spring Washer 1/4"		1
5-20	ZW413998	Washer (SUP)D6.8x12.7x1t		1
5-21	MV269965	Steel Ball D4		1
5-22	MV248343	Belt Guide Pin	4TR-109	1

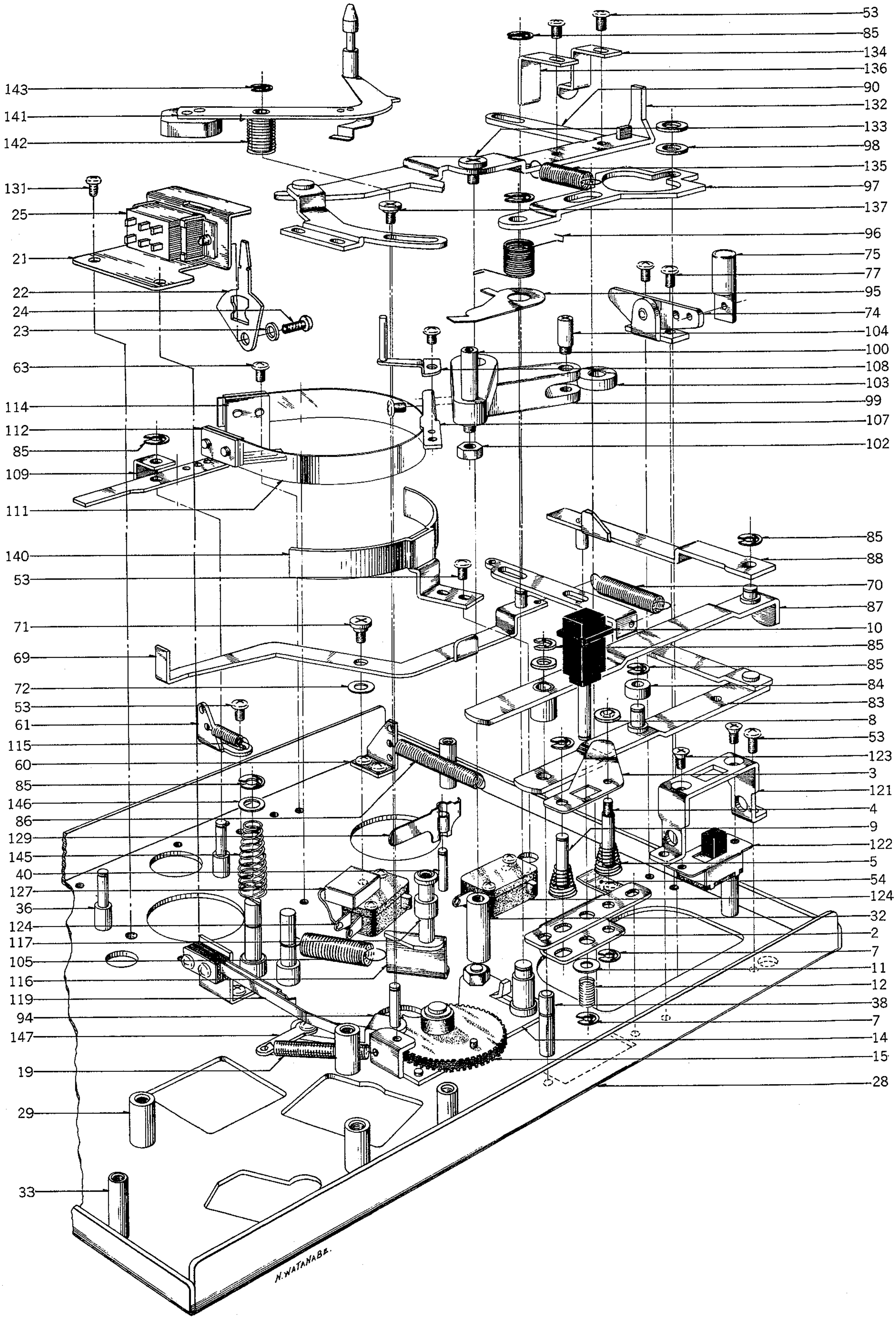
FIG. 6 ILLUSTRATION OF SWITCH LEVER/HARNESS BLOCK

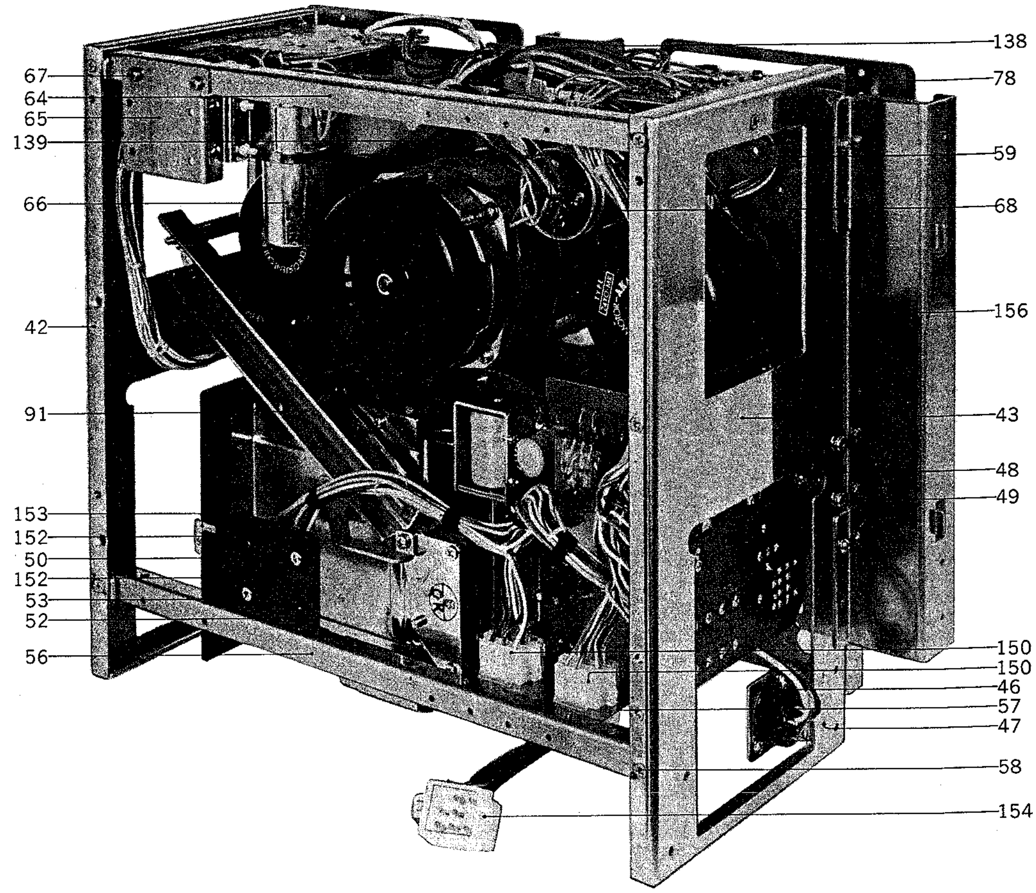

11
10
12
13
8
14
4
7
1
2
5
6
25
15
17
16
24
26
27
28
29
12
30
32
12
34
39
33
38
37
40
41
35

SWITCH LEVER/HARNESS BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	SWITCH, HARNESS BLOCK			
6-1	MZ436397	SW. Table A, w/prop	MC-2001	1
6-2	ES316923	Play Shaft (Y type) Y-133	25-8-6	1
6-3x	ZW460157	Washer (SPC)D3.1x8x0.8t		2
6-4	ZW273756	Nut M3		2
6-5	ES437501	Rewind Shaft (X type), MC	25-8-8	2
6-6	ZS413728	Screw, binding head 3x6, w/washer		2
6-7	MZ316945	Nut Plate	MR-245	1
6-8	MZ316956	Cam A-3, w/plate	MR-242	1
6-9x	ZW259942	Washer (Fiber)D5.1x10.3x0.5t		1
6-10	MR269730	Cam Roller D12	900-213	1
6-11	ZW290283	'U' Ring 2.85M	6-1-1	1
6-12	ZS413201	Screw, pan head 4x8		5
6-13	MZ405483	Cam B-1, w/tap	900-206	1
6-14	MV270066	Steel Ball D8		1
6-15	MZ436375	SW. Retaining Table	MC-2003	2
6-16	ZS371856	ISO Screw, binding head 3x5		6
6-17	ES479485	Slide SW. S-1	25-3-66	2
6-18x	MZ436386	Connector Mt. Base	MC-1007	2
6-19x	EJ368785	Multi-jack 14P 3250-014-001	31-4-14	1
6-20x	EJ300508	Mate-N-Lock Plug Housing 9P 1-480274-0	52-1-7	2
6-21x	EJ229353	Socket Contact 60510-1	52-1-1	17
6-22x	ES479485	Slide SW. S-1	25-3-66	2
6-23x	EZ549167	Cycle Change SW. Plate A-1	KD-2043	1
6-24	ZS323728	Screw, binding head 3x5		8
6-25	ZG436443	SW. Spring MC	MC-2004	1
6-26	MZ317024	SW. Cam	MR-204	1
6-27	ZW416698	Nut M4		1
6-28	ZS413234	Screw, pan head 4x12		1
6-29	MZ225720	SW. Table B-2	M9-308	1
6-30	MZ226001	SW. Lever Prop	900-211	1
6-31x	ZW260087	Washer (Fiber)D6.1x10x0.5t		1
6-32	MZ206515	Amp. SW. Cam	900-208	1
6-33	MH260425	Cotter Pin 1x10		1
6-34	ZG227564	Spring H	900-120	1
6-35	ZW290283	'U' Ring 2.85M	6-1-1	1
	SWITCH LEVER BLOCK			
6-36x	BL304997	SW. Lever Block Comp.	#6	1
6-37	ML226080	SW. Lever A, w/shaft	900-255	1
6-38	MR217203	Cam Roller A (Nylon)D12	900-153	1
6-39	ZW290283	'U' Ring 2.85M	6-1-1	1
6-40	ML309284	Rec. Lever B	RC-201	1
6-41	ZS437545	Hexagon Bolt 4x7, w/washer		2

FIG. 7 ILLUSTRATION OF MECH. ASSEMBLY BLOCK


143
141
142
131
25
21
22
24
23
63
114
112
85
109
111
140
53
71
69
72
53
61
115
60
85
146
86
129
145
40
127
36
124
117
105
116
119
94
147
19
29
33
53
85
134
136
90
132
133
98
135
97
137
96
75
77
95
74
104
100
108
103
99
107
102
85
88
70
87
10
85
85
84
83
8
53
123
3
121
4
9
122
5
54
124
32
2
7
11
12
38
7
14
15
28
N.WATANABE



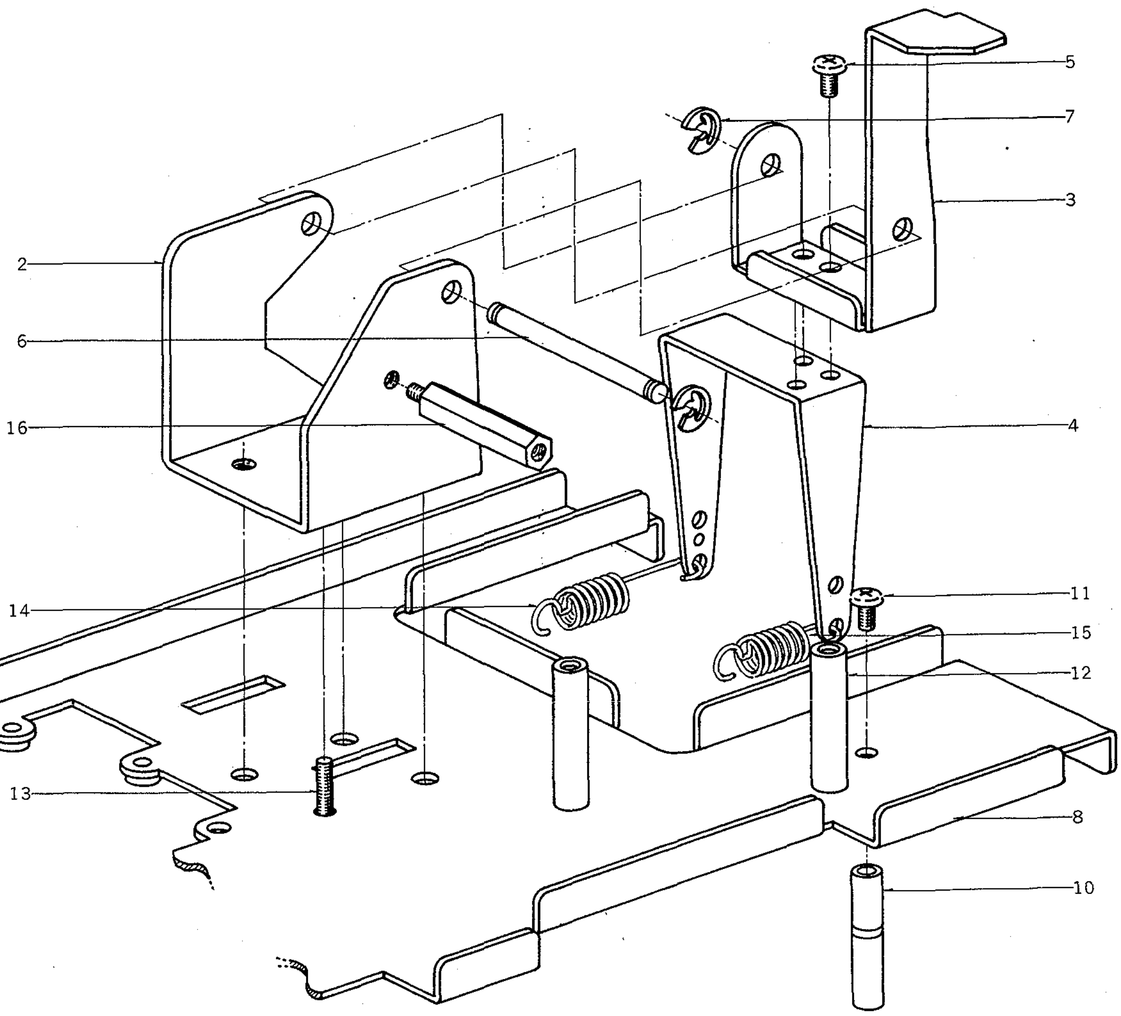
MECH. ASSEMBLY BLOCK

Ref. No.	Part. No.	Description	Schematic No.	Q'ty
		REC. BUTTON BLOCK		
7-1x	BZ314820	Rec. Button Block Comp.	MC,MS,MR	1
7-2	MZ316708	Stopper Table	MR-219	1
7-3	MZ316710	Cam Stopper	MR-220	1
7-4	MS316721	Stopper Shaft	MR-221	1
7-5	ZG316732	Cone Spring	MR-244	2
7-6x	ZW322525	Washer (PBP)D4.1x7x0.2t		1
7-7	ZW290283	'U' Ring 2.85M	6-1-1	3
7-8	ZW432944	Push Nut 3x10x0.3t		1
7-9	MS316776	Stopper Shaft B	MR-259	1
7-10	SB316754	Rec. Button	MR-222	1
7-11	ZW259830	Washer (SPC)D4.5x9.8x0.5t		1
7-12	ZG316765	Rec. Button Spring	MR-252	1
		ECCENTRIC GEAR BLOCK		
7-13x	BZ248027	Eccentric Gear Block Comp.	MC,MU,MR,MS	1
7-14	MZ248016	Eccentric Gear Table, w/shaft	4TR-243	1
7-15	MZ248005	Eccentric Gear	4TR-245	1
7-16x	ZW861344	Washer (PBP)D6.1x10x0.4t		1
7-17x	ZW260144	Washer (Nylon)D6.1x10x0.3t		1
7-18x	ZW290283	'U' Ring 2.85M	6-1-1	1
7-19	ZG437253	Eccentric Gear Return Spring	MS-2022	1
		SPEED CHANGE BLOCK		
7-20x	BZ555366	Speed Change Block Comp.	MC-2	1
7-21	ML541192	SW. Base	MC-1202	1
7-22	ML541203	SW. Lever	MC-1203	1
7-23	MZ540966	SW. Collar	MC-1204	1
7-24	ZS323728	Screw, binding head 3x5		1
7-25	ES554837	Slide SW. JS-04	25-3-73	1
7-26x	ZS371856	ISO Screw, binding head 3x5		2
7-27x	SE540865	SW. Mask	MC-6211	1

Ref. No.	Part. No.	Description	Schematic No.	Q'ty
		MECH. ASSEMBLY BLOCK		
7-28	MZ541214	Mech. Frame MC-2, w/pin	MC-1201	1
7-29	MH247533	Head Prop E	100012	3
7-30x	ZS413201	Screw, pan head 4x8		2
7-31x	ZS414044	Screw, countersunk head 4x8		1
7-32	MS317362	Pinch Roller Arm Shaft	MR-125	1
7-33	MH273295	Mech. Panel Prop, M-9	M9-302	3
7-34x	ZS421806	Screw, pan head 3x8		2
7-35x	ZS413741	Screw, binding head 3x8		3
7-36	MH317373	Brake Lever Prop	MR-102	2
7-37x	ZW416698	Nut M4		2
7-38	MS260515	A Lever Shaft	900-126	1
7-39x	ZW413267	Flange Nut M4		1
7-40	MS250536	Micro Lever Shaft	3A-239	1
7-41x	ZW273688	Nut M2.3		1
7-42	MZ468382	Side Plate A (Right)	MC-2014	1
7-43	MZ468393	Side Plate B (Left)	MC-2014	1
7-44x	ZS468112	Tapping Screw #2 4x8(truss)		4
7-45x	ZW563207	Tapping Screw #2 4x10 (countersunk)		4
7-46	MZ541023	6P Holder	MC-1210	1
7-47	ZS418858	Screw, countersunk head 3x5 D=5		6
7-48	MZ468404	Sys. Con. Holder	MC-2015	1
7-49	ZS800190	Screw, binding head 3x5, w/washer		6
7-50	EZ397124	Frequency Change SW. Plate B	KD-1055	1
7-51x	SE479823	SW. Mask, MC	MC-1020	1
7-52	MZ436432	Cycle Change Plate	MC-1009	1
7-53	ZS323728	Screw, binding head 3x5		25
7-54	MZ217697	Pause Lever Stopper Plate	M9-113	1
7-55x	MZ256814	Rewind Shaft Spacer	M9-124	2
7-56	MZ436588	Reinforcement Plate A	MC-1005	1
7-57	MZ437657	Connector Mt. Plate	MC-1008	1
7-58	ZS424124	Screw, countersunk head 3x5		6
7-59	EJ315101	Nylon Clip HP-4N	2-7-38	2

Ref. No.	Part. No.	Description	Schematic No.	Q'ty
7-60	MZ227340	Spring Rack B	900-172	1
7-61	MZ314605	Spring Rack, MR	MR-104	2
7-62x	ZS202116	Screw, binding head 3x5, w/lug		1
7-63	ZS427048	Screw, round head 3x3		6
7-64	MZ530537	Reinforcement Plate C	MC-1005	1
7-65	MZ447366	Capacitor Retaining Base	MC-1017	1
7-66	EC554804	MP/C. 2+1μF 250WVAC(Lug type Uni/D.)	24-9-81	1
7-67	ZS413223	Screw, binding head 3x5, w/washer		6
7-68	EC520626	MP/C. (3+1)μFx2 250WVAC(Lug type Uni/D.)	24-9-74	1
7-69	ML314684	Brake Lever C, w/pin	MR-227	1
7-70	ZG314706	Spring IB	MR-115	1
7-71	ZS314717	Graduated Screw, MR	MR-254	1
7-72	ZW432347	Washer(Luminar)D6.2x13x0.125t		1
7-73x	ZW273756	Nut M3		1
7-74	ML226258	Start Lever A,w/lever B-2	4TR-122	1
7-75	SB425777	Start Button D	MS-1002	1
7-76x	ZW314728	Cotter Pin 1.6x8		1
7-77	ZS425788	Screw, round head 3x4		2
7-78	MZ437308	Frame Top Member, MC	MS-6011	1
7-79x	ZS200700	Tapping Screw #2 4x8(round)		2
7-80x	ZW330412	Adjust Washer(U)D4x13x0.13t		1
7-81x	ZW330423	Adjust Washer(U)D4x13x0.25t		1
7-82x	ZW330445	Adjust Washer(U)D4x13x0.8t		1
7-83	ML314763	Lever B, MR (w/D lever)	MR-122	1
7-84	MR314785	Cam Roller D9	MR-237	1
7-85	ZW290283	'U' Ring 2.85M	6-1-1	6
7-86	ZG314818	D Lever Spring	MR-114	1
7-87	ML334506	Lever A, MR (w/metal)	MR-126	1
7-88	ML314842	C Lever, MR (w/pin)	MR-108	1
7-89x	ZW419826	Washer (Fiber)D6.2x10x1t		2
7-90	ML314864	IB Lever	MR-111	1
7-91	MZ437692	Flywheel Supporting Base, MC	MC-1012	1
7-92x	EZ207314	Amp. Lever Set Screw	3A-737	1
7-93x	ZW259885	Washer(PBP)D5.1x10.3x0.1t		1
7-94	MZ549426	AS Lever Prop Table B,w/prop	MC-1214	1
7-95	MZ218125	Gear Stopper	4TR-120	1
7-96	ZG226697	Stopper Spring	4TR-121	1
7-97	ML228868	Auto. Mech. Control Lever	4TR-125	1
7-98	ZW260087	Washer (Fiber)D6.1x10x0.5t		1
7-99	ML447478	Pinch Roller Lever, MC	MR-119	1
7-100	MS243404	Pinch Roller Shaft C	4TR-102	1
7-101x	ZW259975	Washer (SUP)D5.1x10.3x0.8t		1
7-102	ZW416698	Nut M4		1
7-103	MR269763	Cam Roller D13	900-154	1
7-104	MS217192	Cam Roller Shaft A	900-130	1
7-105	ZG455692	Pinch Roller Spring, MS	MS-1015	1
7-106x	ZW314943	Washer (Nylon)D8	MR-113	1
7-107	ML314954	Shifter Lever A	MR-117	1
7-108	ML549213	Shifter Lever B, w/pin	MC-1215	1
7-109	ML314976	Brake Lever A (Take-up)	MR-210	1
7-110x	ML396810	Brake Lever B (Supply)	KD-1038	1
7-111	MT314987	Brake Band	MR-213	2
7-112	MZ314998	Brake Band Retaining Plate	MR-212	4
7-113x	ZS417137	Screw, binding head 3x4		8
7-114	MZ315000	Brake Band Support	MR-214	2
7-115	ZG315011	Brake Lever Spring	MR-116	2
7-116	HZ315077	Reverse Guide Base, w/prop	MR-229	1
7-117	HZ315090	Reverse Guide	RD-225	1
7-118x	ZS344463	Set Screw, hexagon socket 4x6(cup/p.)		1
7-119	BS432393	Tension SW, Comp.	MS-1011	1
7-120x	BS447502	Shut-off SW. Comp. MC	MC-1016	1
7-121	MZ447456	Auto SW. Plate B	M8-114	1
7-122	ES479485	Slide SW. S-1	25-3-66	1
7-123	ZS440291	ISO Screw, countersunk head 3x6		2
7-124	ES438535	Micro SW. V-1A442 U/L	25-1-15	2
7-125x	MZ479834	Micro Insulator Paper S	MS-1020	2
7-126x	ZS417148	Screw, binding head 3x15		4
7-127	ER376435	Spark Quencher U/L 0.1μ+120 250WV	41-1-35	1
7-128x	EJ205986	Cramp Terminal 2-SD	32-1-8	6
7-129	ML316394	Operation SW. Lever	MR-112	1
7-130x	ZW270088	'E' Ring 1.9M	6-1-9	1
7-131	ZS425788	Screw, round head 3x4		2
7-132	ML316427	Pause Lever MR (w/lever B)	MR-233	1
7-133	ZS217877	Pause Lever Set Screw	900-136	1
7-134	MZ316451	Pause Stopper, M-7	MH-126	1
7-135	ZG301061	Pause Spring 990A	4TR-128	1
7-136	ML316440	Shut-off SW. Lever	MR-234	1
7-137	ZS207314	Amp. Lever Set Screw	3A-737	1
7-138	MC554826	Counter MP-490-18	9-1-28	1
7-139	MB527556	Counter Belt D93x1.5	ND-1022	1
7-140	MZ317406	Brake Band Guide, w/base	MR-120	2
7-141	BL316484	AS Lever Block Comp.	MC,MS,MR	1
7-142	ZG260706	AS Lever Spring	4TR-118	1
7-143	ZW290294	'U' Ring 2.85M	6-1-1B	1
7-144x	MP271170	Pinch Roller, LC D=38	LC-321	1
7-145	ZG217394	Belt Change Spring B	MH-125	1
7-146	ZW260054	Washer (SUP)D6.1x10x0.25t		1
7-147	ZS202116	Screw, binding head 3x5,w/lug		1
7-148x	MZ436386	Connector Mt. Base	MC-1007	2
7-149x	EJ368785	Multi-jack 14P 3250-014-001	31-4-14	1
7-150	EJ300508	Mate-N-Lock Plug Housing 9P 1-480274-0	52-1-7	2
7-151x	EJ229353	Socket Contact 60510-1	52-1-1	17
7-152	ES479485	Slide Switch S-1	25-3-66	2
7-153	EZ549167	Cycle Change SW. Plate A-1	KD-2043	1
7-154	EJ450573	Mate-N-Lock Cap Housing 9P 1-480277-0	52-1-7	1
7-155x	EJ243191	Pin Contact 60511-1	52-1-1	9
7-156	SZ540898	Sash Angle C	MC-6212	2

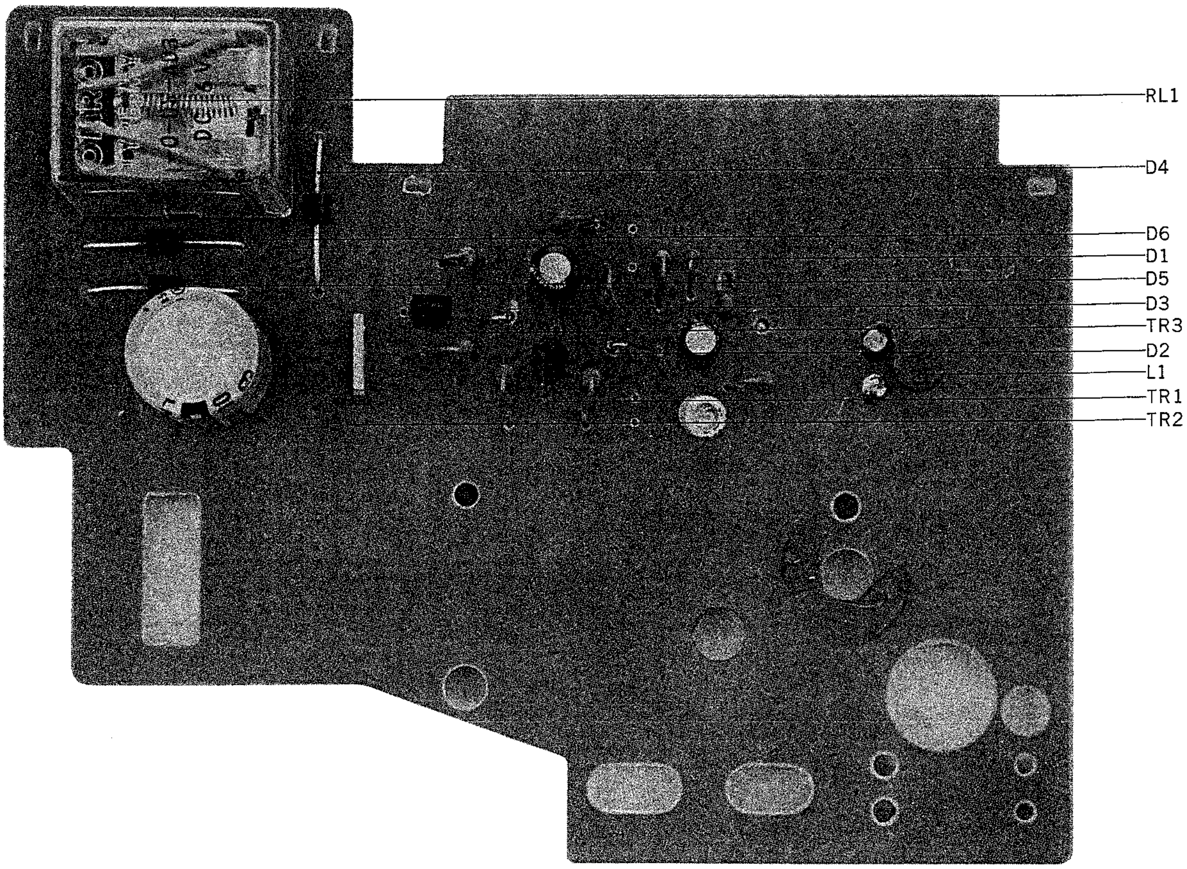
FIG. 8 ILLUSTRATION OF REC. LEVER BLOCK



REC. LEVER BLOCK

Ref. No.	Part No.	Description	Schematic No.	Q'ty
8-1x	BL309690	Rec. Lever Block Comp.	MC,RC,RC-3	1
8-2	EZ309273	Rec. Lever Base	RC-569	1
8-3	EZ305087	Amp. Lever	RC-567	1
8-4	EZ309262	Rec. Hook	RC-568	1
8-5	ZS413223	Screw, binding head 3x5,w/washer		3
8-6	MS309251	Rec. Shaft	RC-582	1
8-7	ZW290283	'U' Ring 2.85M	6-1-1	2
8-8	EZ436465	Amp. Chassis A, w/bush	MC-5009	1
8-9x	EZ447232	Amp. Chassis D, w/bush	MC-5009	1
8-10	MH308957	Mode Prop	RC-578	1
8-11	ZS323728	Screw, binding head 3x5		3
8-12	MH246644	P.C. Board Prop B	RD-519	2
8-13	ZS308946	Mode Square Screw	RC-579	1
8-14	ZG309791	Main Amp. Spring, RC	RC-558	1
8-15	ZG309780	Pre-amp. Spring, RC	RC-557	1
8-16	MH436511	Power Supply P.C. Board Prop	MC-5019	1

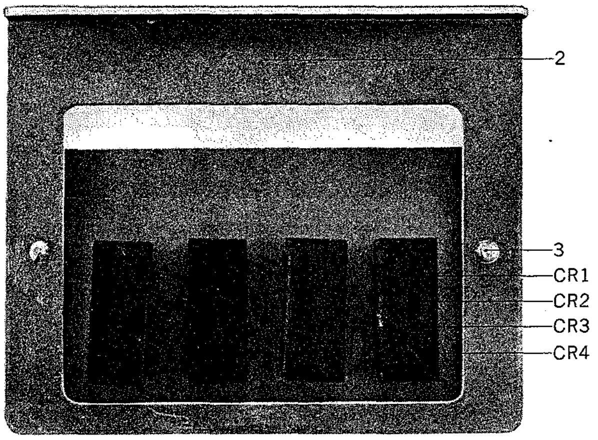
FIG. 9 PHOTO OF CART. P.C. BOARD (MC-3202)



CART. P.C. BOARD (MC-3202) BLOCK

Symbol No.	Parts No.	Description	Q'ty
9-1x	BA555412	Cart. P.C. Board Comp. (MC-3202)	1
9-TR1	ET453486	Transistor 2SC711(E)(F)	1
9-TR2	ET375603	Transistor 2SC1061(B)(C)	1
9-TR3	ET453486	Transistor 2SC711(E)(F)	1
9-D1,2,3	ED514721	Silicon Diode WG599	3
9-D4	ED494583	Silicon Diode 10D05	1
9-D5,6	ED511097	Silicon Diode IN4001	2
9-L1	EO369178	Ferri Inductor FL7H 1.5MH(J)	1
9-RL1	EP303614	Relay MY4-0-US-AD3 6V	1
9-SW10	ES227902	Slide SW. ESS-22C-NB	1
9-P2	EJ450573	Mate-N-Lock Cap Housing 9P 1-480277-0	1
9-2x	EJ243191	Pin Contact 60511-1	7
		Capacitor, Vertical Type	
9-C1	EC320051	Elect. 10μF 16WV	1
9-C2	EC450281	Elect. 0.47μF 50WV	1
9-C3	EC331738	Elect. 4.7μF 50WV	1
9-C4	EC220421	Elect. 1000μF 16WV	1
9-C5	EC250885	Mylar 0.01μF(K) 50WV	1
		Resistor, Stopper Type	
9-R1	ER306887	Carbon RD1/4 15k(J)	1
9-R2	ER212883	Carbon RD1/4 4.7k(J)	1
9-R3,4	ER336442	Carbon RD1/4 10k(J)	1
9-R5	ER211465	Carbon RD1/4 1k(J)	1
9-R6	ER211320	Carbon RD1/4 1.5k(J)	1
9-R7	ER357535	Carbon RD1/4 39k(J)	1
9-R8	ER212264	Carbon RD1/4 22k(J)	1
9-R9	ER336442	Carbon RD1/4 10k(J)	1

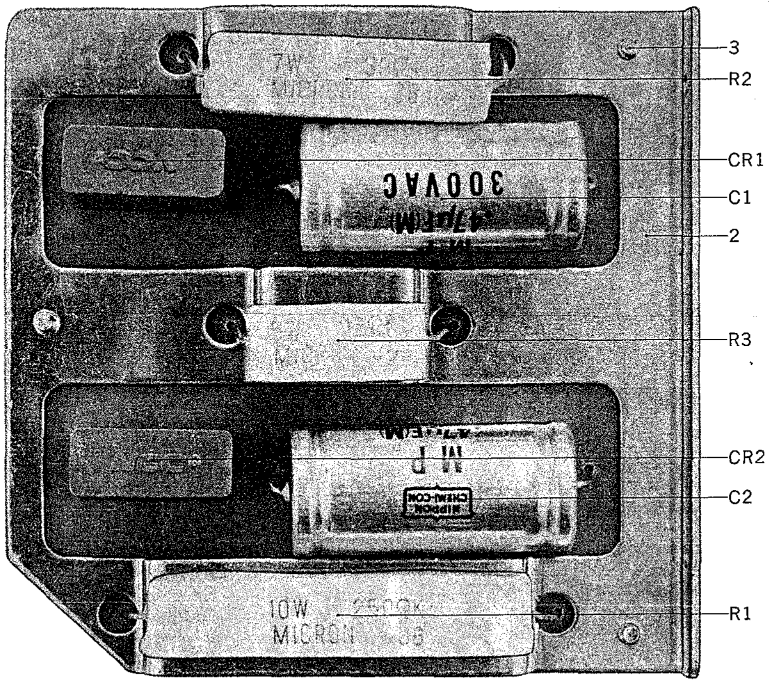
FIG. 10 PHOTO OF SPARK QUENCHER P.C. BOARD (MC-2202)



SPARK QUENCHER P.C. BOARD (MC-2202) BLOCK

Symbol No.	Part No.	Description	Q'ty
10-1x	BA555388	Spark Quencher P.C. Board Comp.(MC-2202)	1
10-CR1 to 4	ER376435	Spark Quencher U/L 0.1μ+120Ω 250WV	2
10-2	ML540720	P.C. Board Parts B	1
10-3	ZS447772	Tapping Screw #2 3x6(BR)	2

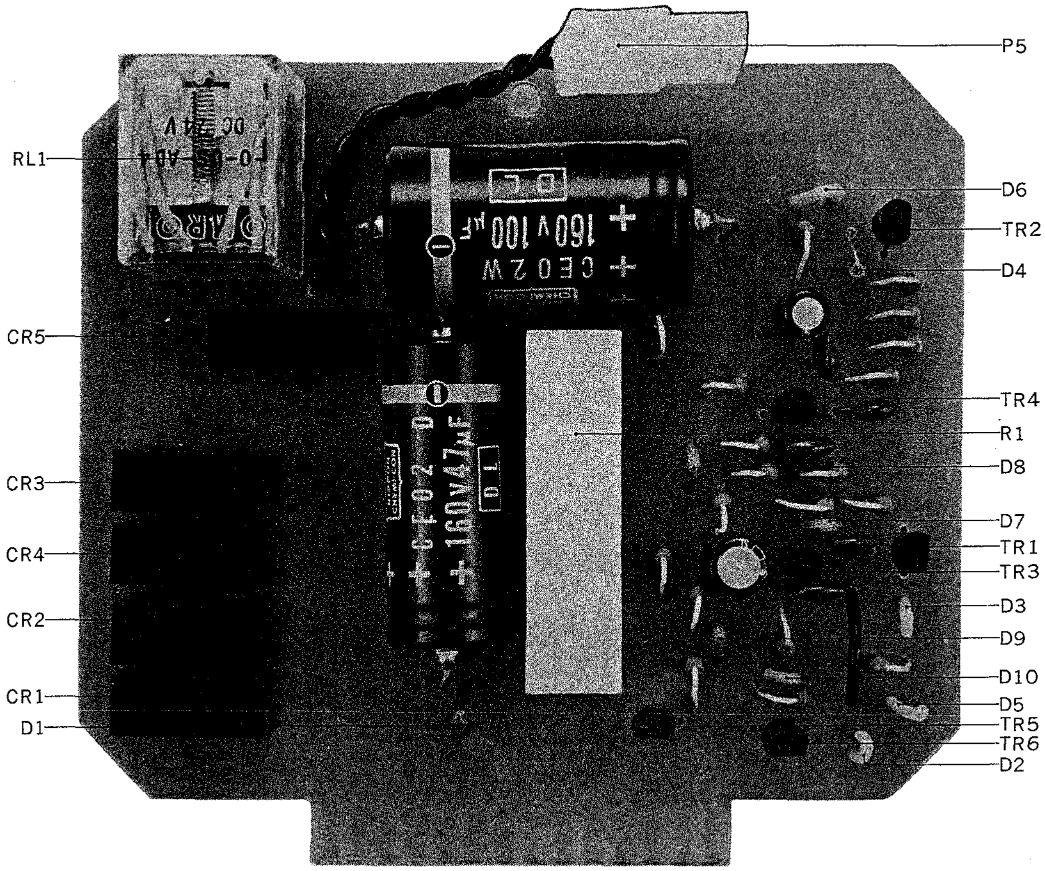
FIG. 11 PHOTO OF RESISTOR P.C. BOARD (MC-2201)



RESISTOR P.C. BOARD (MC-2201) BLOCK

Symbol No.	Parts No.	Description	Q'ty
11-1x	BA555377	Resistor P.C. Board Comp. (MC-2201)	1
11-CR1,2	ER376435	Spark Quencher U/L 0.1μ+120Ω 250WV	2
11-2	ML540718	P.C. Board Parts A	1
11-3	ZS447772	Tapping Screw #2 3x6(BR)	3
11-C1,2	EC350987	MP Capacitor 0.47μF(M)250VAC (Tub.type)	2
		Resistor, Wire-wound Type	
11-R1	ER554850	Cement 10W 250(K)	1
11-R2	ER554872	Cement 7W 39(K)	1
11-R3	ER554894	Cement 5W 12(K)	1

FIG. 12 PHOTO OF SYS. CON. P.C. BOARD (MC-2205)

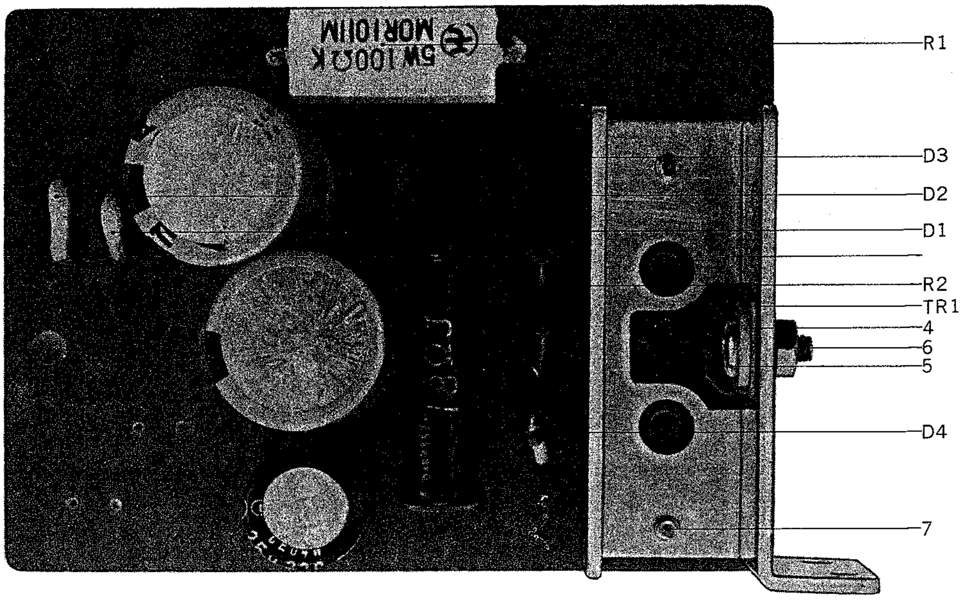


SYS. CON. P.C. BOARD (MC-2205) BLOCK

Symbol No.	Parts No.	Description	Q'ty
12-1x	BA555423	Sys. Con. P.C. Board Comp. (MC-2205)	1
12-TR1 to 6	ET453486	Transistor 2SC711 (E) (F)	6
12-D1	ED224550	Silicon Diode 10D4	1
12-D2,3	ED514721	Silicon Diode WG599	2
12-D4	ED219464	Germanium Diode IN34A	1
12-D5 to 8	ED514721	Silicon Diode WG599	4
12-D9,10	ED384096	Zener Diode RD-9A	2
12-CR1 to 5	ER376435	Spark Quencher U/L 0.1μ+120Ω 250WV	5
12-RL1	EP344136	Relay MY4-O-US-AD4 24V	1
12-P5	EJ452351	Mate-N-Lock Plug Housing 2P 170923-1	1
12-2x	EJ229353	Socket Contact 60510-1	2
		Capacitor, Vertical Type	
12-C1	EC316113	Elect. 47μF 160WV	1
12-C2	EC316091	Elect. 100μF 160WV (Tub. type)	1
12-C3	EC220994	Elect. 10μF 25WV	1
12-C4,5,6	EC250885	Mylar 0.01μF(K) 50WV	3
12-C7	EC251087	Mylar 0.022μF(K) 50WV	1
12-C8	EC220612	Elect. 33μF 25WV	1
12-C9	EC251087	Mylar 0.022μF(K) 50WV	1

Symbol No.	Parts No.	Description	Q'ty
		Resistor, Stopper Type	
12-R1	ER556503	Cement H15 1.5k(K)	1
12-R2	ER380711	Carbon RD1/4 220k(J)	1
12-R3	ER336442	Carbon RD1/4 10k(J)	1
12-R4	ER212883	Carbon RD1/4 4.7k(J)	1
12-R5	ER212477	Carbon RD1/4 3.3k(J)	1
12-R6,7,8	ER212883	Carbon RD1/4 4.7k(J)	3
12-R9	ER336442	Carbon RD1/4 10k(J)	1
12-R10	ER357456	Carbon RD1/4 2.2k(J)	1
12-R11	ER211757	Carbon RD1/4 100k(J)	1
12-R12	ER212264	Carbon RD1/4 22k(J)	1
12-R13	ER212883	Carbon RD1/4 4.7k(J)	1
12-R14	ER357456	Carbon RD1/4 2.2k(J)	1
12-R15	ER212264	Carbon RD1/4 22k(J)	1
12-R16	ER211465	Carbon RD1/4 1k(J)	1
12-R17	ER429996	Carbon RD1/4 470k(J)	1
12-R18	ER211465	Carbon RD1/4 1k(J)	1
12-R19	ER429996	Carbon RD1/4 470k(J)	1
12-R20	ER211667	Carbon RD1/4 100(J)	1

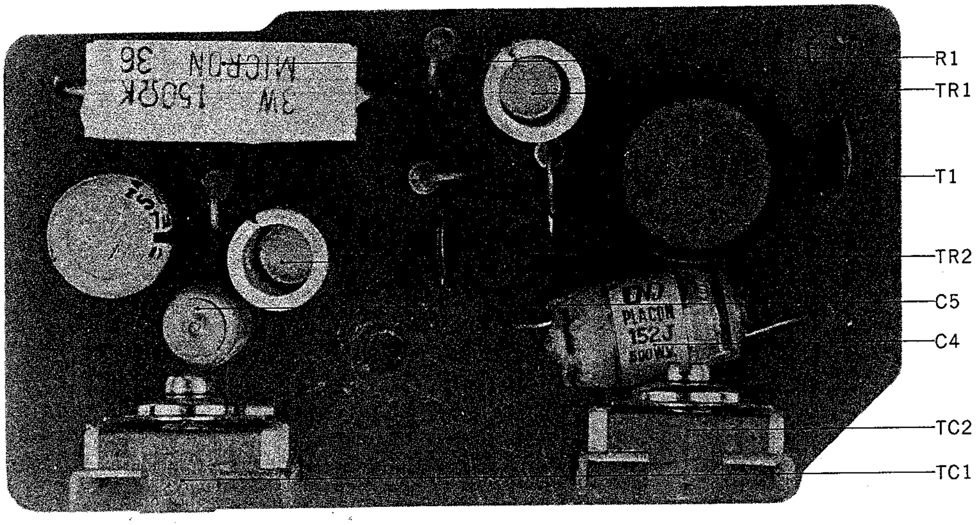
FIG. 13 PHOTO OF POWER SUPPLY P.C. BOARD (MC-5208)



POWER SUPPLY P.C. BOARD (MC-5208) BLOCK

Symbol No.	Parts No.	Description	Q'ty
13-1x	BA555502	Power Supply P.C. Board Comp. (MC-5208)	1
13-2x	BA555513	Power Supply P.C. Board Comp. (MC-5208) (Deck)	1
13-TR1	ET476886	Transistor 2SC1098(L) (M)	1
13-D1,2	ED224526	Silicon Diode 10D1	2
13-D3	ED329130	Silicon Diode 10DC-1 (black)	1
13-D4	ED511918	Zener Diode WZ-240	1
13-3	EZ436645	Heat-sink Plate, MC	1
13-4	EZ413695	Insulator Plate	1
13-5	ZS413741	Screw, binding head 3x8	1
13-6	ZW273756	Nut M3	1
13-7	ZS413155	Screw, binding head 3x6	2
		Capacitor, Vertical Type	
13-C1,2	EC557651	Elect. 470μF 50WV	2
13-C3	EC336115	Elect. 220μF 25WV	1
		Resistor, Stopper Type	
13-R1	ER555017	Cement 5W 100(K) (Wire-wound type)	1
13-R2	ER413717	Wire-wound 3W 18(J) (L type)	1
13-R3	ER212883	Carbon RD1/4 4.7k(J)	1
13-R4	ER361642	Carbon RD1/4 47(J)	1
13-R5,6	ER399644	Carbon RD1/4 82(J)	2

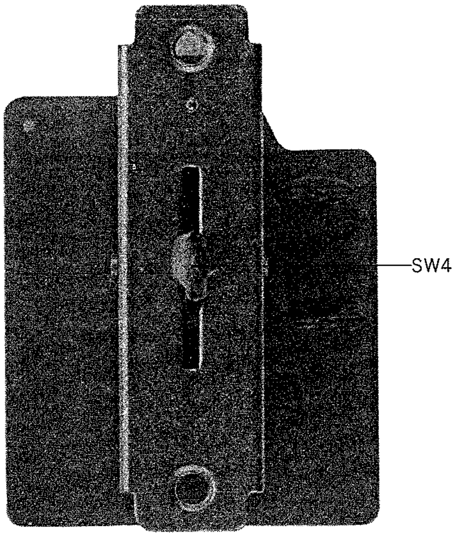
FIG. 14 PHOTO OF OSC. P.C. BOARD (MC-5204)



OSC. P.C. BOARD (MC-5204) BLOCK

Symbol No.	Parts No.	Description	Q'ty
14-1x	BA555491	OSC. P.C. Board Comp. (MC-5204)	1
14-TR1,2	ET304255	Transistor 2SC971 (2) (3) (red)	2
14-T1	EO453521	OSC. Coil OT-803	1
14-TC1,2	EC561025	Trimmer/C. TM-70A	2
		Capacitor, Vertical Type	
14-C1	EC336126	Elect. 47μF 25WV	1
14-C2,3	EC250841	Mylar 0.01μF(J) 50WV	2
14-C4	EC446242	Plastic Film 1500PF(J) 500WV	1
14-C5	EC439097	Plastic Film 820PF(J) 500WV	1
		Resistor, Stopper Type	
14-R1	ER555028	Cement 3W 150(K) (Wire-wound type)	1
14-R2,3	ER315944	Carbon RD1/4 3.3(J)	2
14-R4	ER304402	Carbon RD1/4 470(J)	1
14-R5	ER212883	Carbon RD1/4 4.7k(J)	1

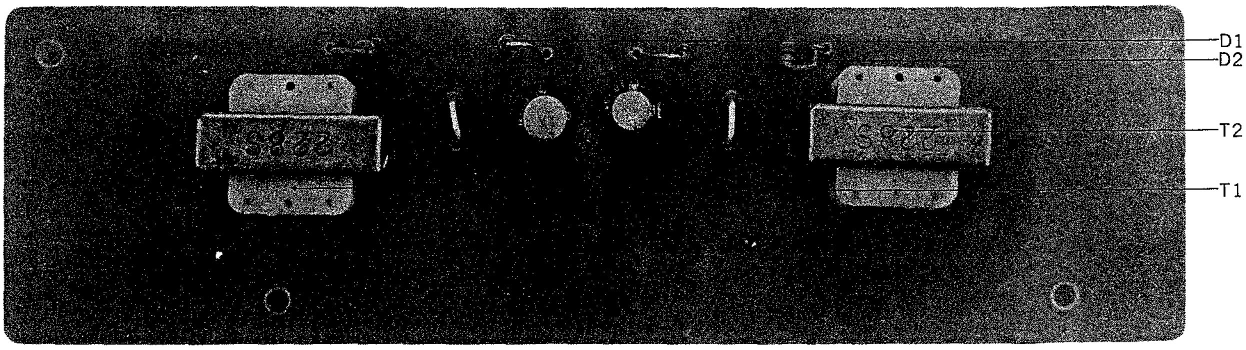
FIG. 15 PHOTO OF EQUALIZER SW. (MC-5206) BLOCK



EQUALIZER SW. (MC-5206) BLOCK

Symbol No.	Parts No.	Description	Q'ty
15-1x	BA555568	Equalizer SW. Block Comp. (MC-5206)	1
15-SW4	ES457514	Lever SW. SQ11(PVB)12-4-2(black)(M)	1
15-C2,5	EC250975	Mylar Capacitor 0.015μF(J) 50WV (Vert. type)	2

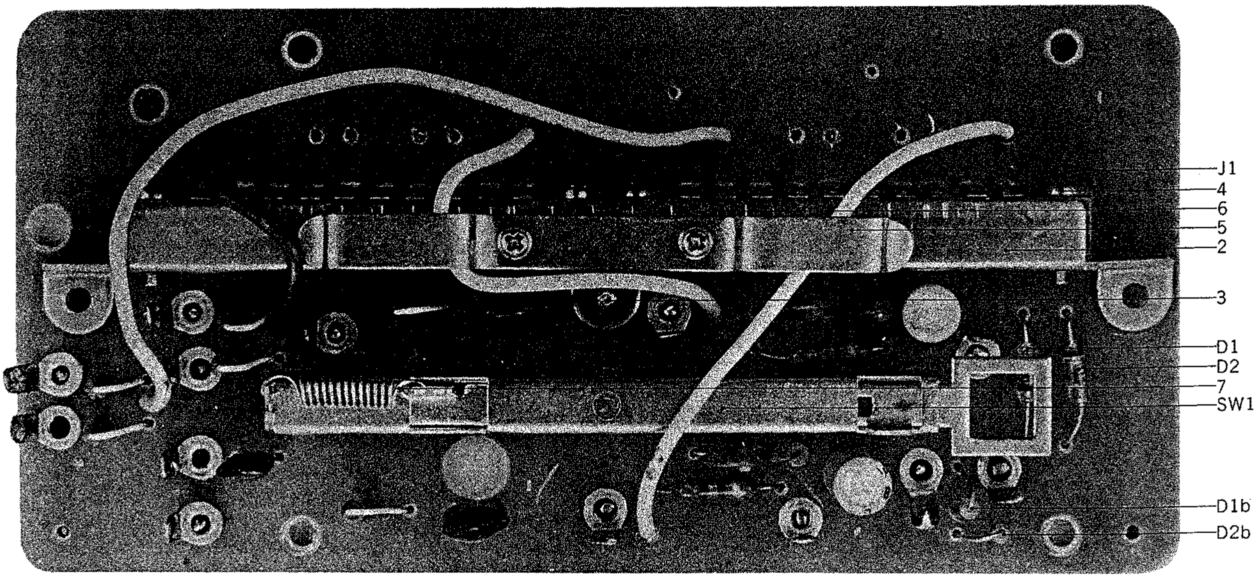
FIG. 16 PHOTO OF OUT P.C. BOARD (MC-5031) (DECK)



OUT P.C. BOARD (MC-5031) BLOCK (DECK)

Symbol No.	Parts No.	Description	Q'ty
16-1x	BA447041	Out P.C. Board Comp. (MC-5031) (Deck)	1
16-D1,2	ED219464	Germanium Diode IN34A	1
16-T1,2	BT247746	Headphone Trans. N19-228S	2
16-C1,2	EC220590	Elect. Capacitor 33μF 10WV	2
		Resistor, Stopper Type	
16-R1,2	ER306843	Carbon RD1/4 1.2k(J)	2
16-R3,4	ER211465	Carbon RD1/4 1k(J)	2

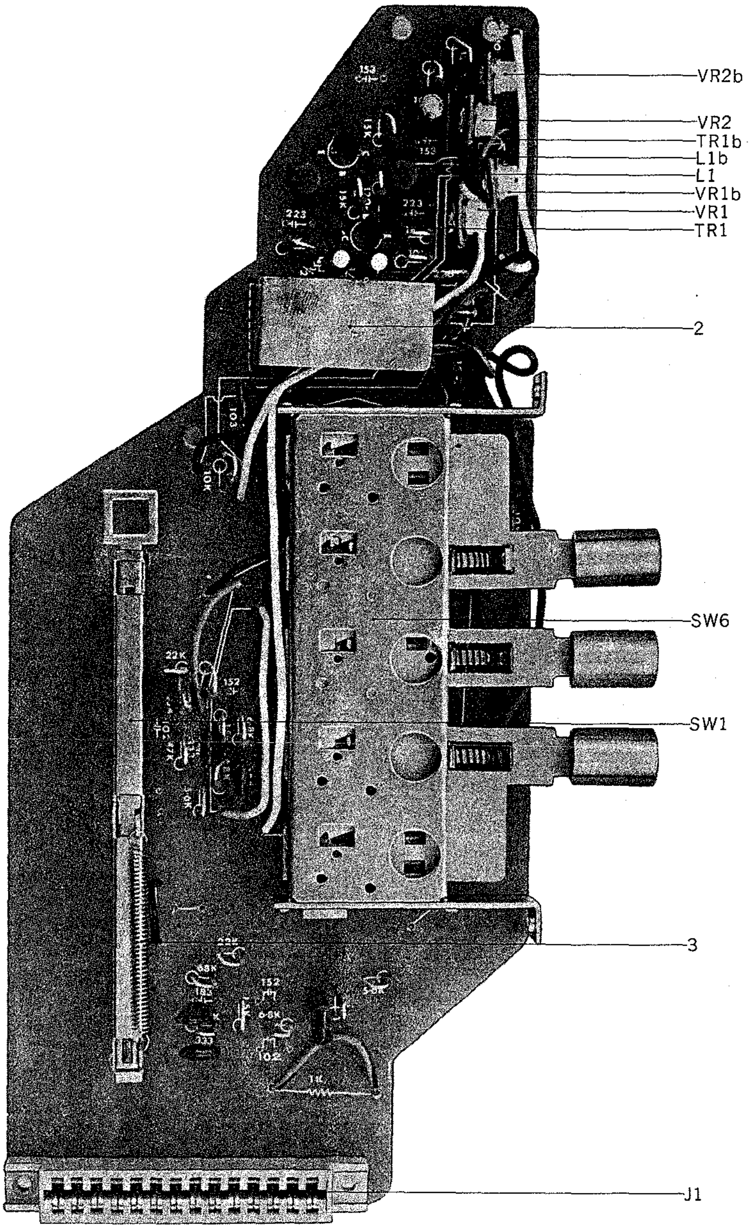
FIG. 17 PHOTO OF OUT SW. (RC-554) BLOCK



OUT SW. (RC-554) BLOCK

Symbol No.	Parts No.	Description	Q'ty
17-1x	BA309701	Out SW. Block Comp. (RC-554)	1
17-SW1	ES307877	Slide SW. CL162B35	1
17-J1	EJ310847	Multi-jack-3 10P 500-010-099	2
17-D1,2	ED219464	Germanium Diode IN34A	4
17-2	EZ308002	Socket Holder	1
17-3	ZS202296	Screw, round head 2.3x5	1
17-4	ZS202230	Screw, round head 2.3x10	4
17-5	EZ310814	W Cord Supporter	1
17-6	ZS202274	Screw, round head 2.3x3	2
17-7	ZG305010	Out Spring	1
		Capacitor, Vertical Type	
17-C1	EC250885	Mylar 0.01μF(K) 50WV	2
17-C2	EC338488	NP 3.3μF 25WV	2
17-C3	EC251155	Mylar 0.033μF(K) 50WV	2
		Resistor, Stopper Type	
17-R3	ER212681	Carbon RD1/4 330(J)	2
17-R4	ER306887	Carbon RD1/4 15k(J)	2
17-R5	ER306843	Carbon RD1/4 1.2k(J)	2
17-R6	ER306360	Carbon RD1/4 6.8k(J)	2
17-R7	ER324764	Carbon RD1/4 560(J) (Insu. type)	2
17-R8	ER304402	Carbon RD1/4 470(J)	2

FIG. 18 PHOTO OF MODE SW. (RC-553) BLOCK

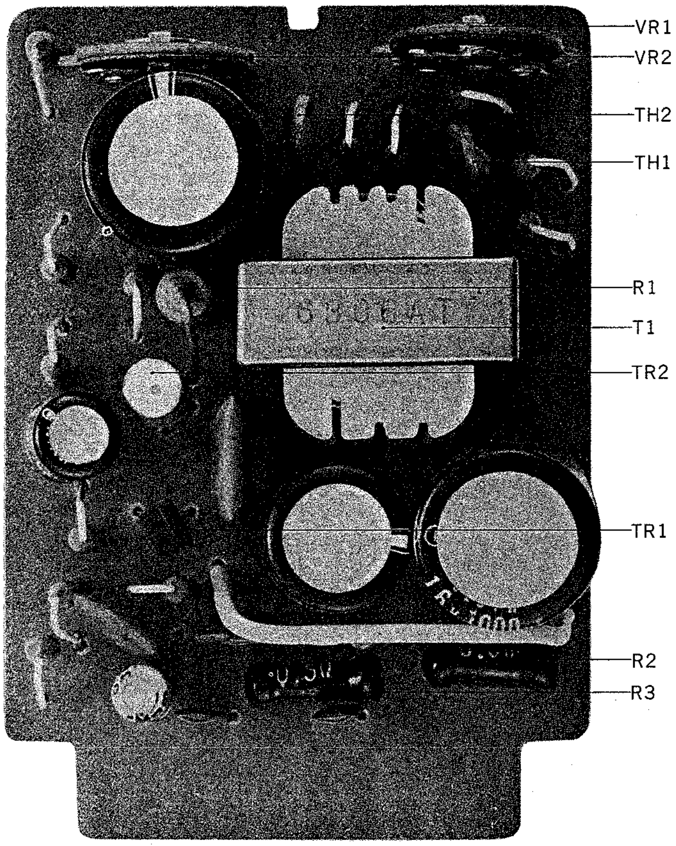


MODE SW. (RC-553) BLOCK

Symbol No.	Parts No.	Description	Q'ty
18-1x	BA555636	Mode SW. Block Comp. (RC-553)	1
18-TR1	ET234753	Transistor 2SC458(B)	2
18-L1	EO243988	Ferri Inductor FL7H 3.3MH(J)	2
18-L2	EO244012	Ferri Inductor FL9H 22MH(J)	2
18-VR1,2	EV498060	Semi-fixed Vol. V10K8-1-5 2 kB(4US)	4
18-SW1	ES302207	Slide SW. CL192B35	1
18-SW6	ES447175	Push SW. SPM-035N14	1
18-J1	EJ293084	Multi-jack-1 14P 3250-014-098	1
18-2	EZ307361	Coil Shield	1
18-3	ZG308970	Mode Spring	1
		Capacitor, Vertical Type	
18-C1	EC399734	Mylar 0.12μF(J) 50WV	2
18-C2	EC320051	Elect. 10μF 16WV	2
18-C3	EC331828	Elect. 3.3μF 25WV	2
18-C4	EC336194	VFM 270PF(J) 50WV	2
18-C5	EC250975	Mylar 0.015μF(J) 50WV	2
18-C6	EC379157	Mylar 0.033μF(J) 50WV	2
18-C7,8	EC389485	Mylar 0.018μF(J) 50WV	2

Symbol No.	Parts No.	Description	Q'ty
		Resistor, Stopper Type	
18-R1,2	ER212264	Carbon RD1/4 22k(J)	4
18-R3	ER336442	Carbon RD1/4 10k(J) (Right ch.)	1
18-R3	ER213647	Carbon RD1/4 10k(J) (Left ch.)	1
18-R4	ER336442	Carbon RD1/4 10k(J)	2
18-R5	ER450011	Carbon RD1/4 120k(J)	2
18-R6	ER211465	Carbon RD1/4 1k(J)	2
18-R7	ER306887	Carbon RD1/4 15k(J)	2
18-R8	ER399060	Carbon RD1/4 9.1k(J)	2
18-R9	ER350100	Carbon RD1/4 68k(J)	2
18-R10	ER357535	Carbon RD1/4 39k(J)	2
18-R11	ER343078	Carbon RD1/4 2.7k(J)	2
18-R12	ER357456	Carbon RD1/4 2.2k(J)	2
18-R13	ER362272	Carbon RD1/4 200k(J)	2
18-R14	ER357456	Carbon RD1/4 2.2k(J)	2

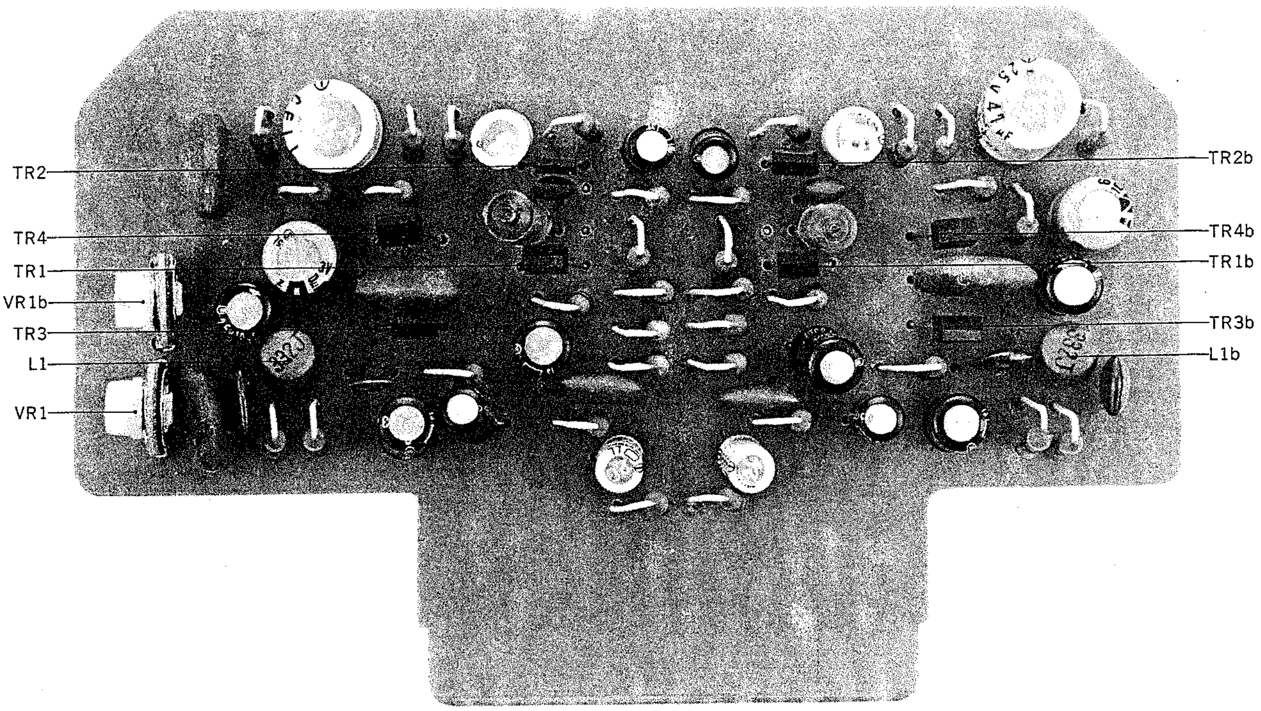
FIG. 19 PHOTO OF MAIN AMP. P.C. BOARD (RC-589)



MAIN AMP. P.C. BOARD (RC-589) BLOCK

Symbol No.	Parts No.	Description	Q'ty
19-1x	BA309723	Main Amp. P.C. Board Comp. (RC-589)	1
19-TR1	ET329218	Transistor 2SC458(C)	1
19-TR2	ET338894	Transistor 2SC968(3)	1
19-TH1,2	ED324551	Thermister 19D46	2
19-VR1,2	EV338916	Semi-fixed Vol. V17K2D-4 kB	2
19-T1	BT329117	Driver Trans. N24B-6306AT	1
		Capacitor, Vertical Type	
19-C1,2	EC250604	Mylar 0.001µF(K) 50WV	2
19-C3	EC251087	Mylar 0.022µF(K) 50WV	1
19-C4	EC290564	VFM 220PF(K) 50WV	1
19-C5	EC339063	VFM 390PF(K) 50WV	1
19-C6	EC220421	Elect. 1000µF 16WV	1
19-C7	EC339096	Elect. 470µF16WV	1
19-C8	EC320051	Elect. 10µF 16WV	1
19-C9	EC331817	Elect. 470µF 25WV	1
19-C10	EC220105	Elect. 100µF 10WV	1
		Resistor, Stopper Type	
19-R1	ER514912	Metal Oxide Film 1W 390(K)	1
19-R2,3	ER338940	Wire-wound 1/4 0.5(K)·(L type)	2
19-R4	ER349907	Carbon RD1/4 33k(J)	1
19-R5	ER346601	Carbon RD1/4 47k(J)	1
19-R6,7	ER336442	Carbon RD1/4 10k(J)	2
19-R8,9	ER362441	Carbon RD1/4 1.8k(J)	2
19-R10,11	ER429794	Carbon RD1/4 68(J)	2
19-R12,13	ER399644	Carbon RD1/4 82(J)	2
19-R14	ER213120	Carbon RD1/4 56(J)	1
19-R15	ER306360	Carbon RD1/4 6.8k(J)	1
19-R16	ER357412	Carbon RD1/4 220(J)	1
19-R17	ER304290	Carbon RD1/4 10(J)	1

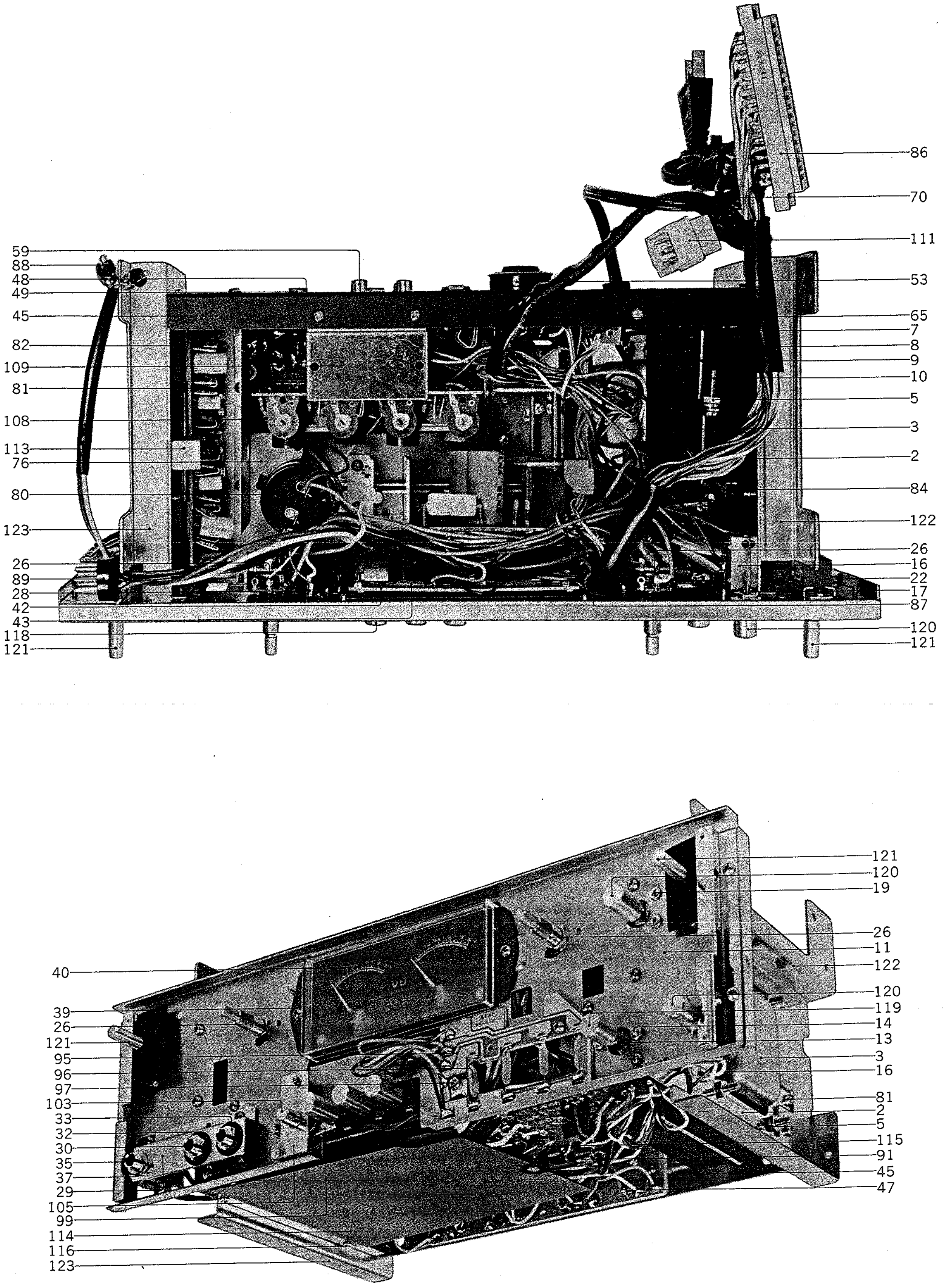
FIG. 20 PHOTO OF PRE-AMP. P.C. BOARD (MC-5207)

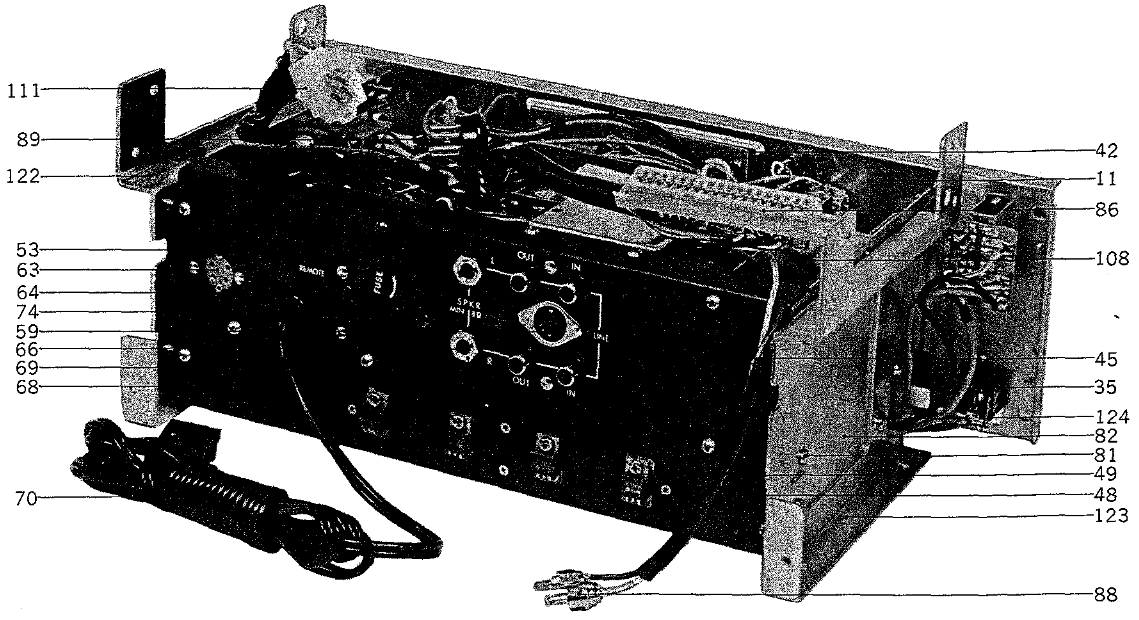


PRE-AMP. P.C. BOARD (MC-5207) BLOCK

Symbol No.	Parts No.	Description	Q'ty
20-1x	BA555647	Pre-amp. P.C. Board Comp. (MC-5207)	1
20-2x	BA555658	Pre-amp. P.C. Board Comp. (MC-5207) (1820D)	1
20-TR1 to 4	ET234832	Transistor 2SC458LG(B)	8
20-L1	EO243988	Ferri Inductor FL7H 3.3MH(J)	2
20-VR1	EV497698	Semi-fixed Vol. V10K8-1-5 20 kB (4US)	2
		Capacitor, Vertical Type	
20-C1	EC432810	Elect. 10μF 16WV NL	2
20-C2	EC329850	VFM 220PF(J) 50WV	2
20-C3	EC423562	VFM 470PF(J) 50WV	2
20-C4	EC220590	Elect. 33μF 10WV	2
20-C5	EC517138	Elect. 10μF 25WV NL	2
20-C6	EC320051	Elect. 10μF 16WV	2
20-C7	EC476965	Elect. 47μF 25WV NL	2
20-C8	EC450055	Elect. 1μF 25WV	2
20-C9	EC336216	VFM 330PF(J) 50WV	2
20-C10	EC220364	Elect. 100μF 6.3WV	2
20-C11	EC250683	Mylar 0.0022μF(J) 50WV	2
20-C12	EC220994	Elect. 10μF 25WV	2
20-C13	EC220364	Elect. 100μF 6.3WV	2
20-C13	EC320051	Elect. 10μF 16WV (Deck)	2
20-C14	EC336216	VFM 330PF(J) 50WV	2
20-C15	EC368335	Mylar 0.022μF(J) 50WV	2
20-C16	EC399690	VFM 33PF(J) 50WV	2
		Resistor, Stopper Type	
20-R1,2	ER211757	Carbon RD1/4 100k(J)	4
20-R3	ER555660	Carbon RD1/4 150k(J) NL	2
20-R4	ER212477	Carbon RD1/4 3.3k(J)	2
20-R5	ER212681	Carbon RD1/4 330(J)	2
20-R6	ER346601	Carbon RD1/4 47k(J)	2
20-R7	ER211757	Carbon RD1/4 100k(J)	2
20-R8	ER212264	Carbon RD1/4 22k(J)	2
20-R9	ER336442	Carbon RD1/4 10k(J)	2
20-R10	ER306887	Carbon RD1/4 15k(J)	2
20-R11	ER304402	Carbon RD1/4 470(J)	2
20-R12	ER211667	Carbon RD1/4 100(J)	2
20-R13	ER350100	Carbon RD1/4 68k(J)	2
20-R14	ER211320	Carbon RD1/4 1.5k(J)	2
20-R15	ER212681	Carbon RD1/4 330(J)	2
20-R16	ER212883	Carbon RD1/4 4.7k(J)	2
20-R17	ER379473	Carbon RD1/4 30k(J)	2

FIG. 21 PHOTO OF AMPLIFIER ASSEMBLY BLOCK


59
88
48
49
45
82
109
81
108
113
76
80
123
26
89
28
42
43
118
121
86
70
111
53
65
7
8
9
10
5
3
2
84
122
26
16
22
17
87
120
121
40
39
26
121
95
96
97
103
33
32
30
35
37
29
105
99
114
116
123
121
120
19
26
11
122
120
119
14
13
3
16
81
2
5
115
91
45
47

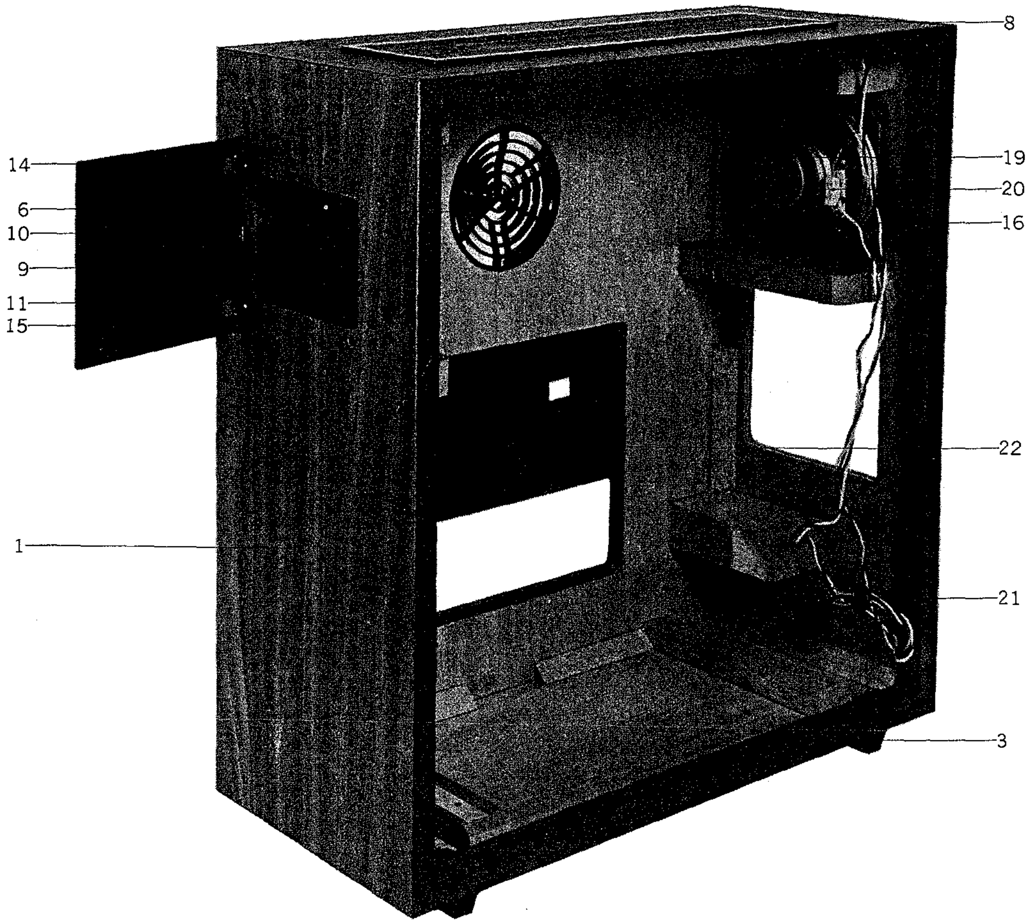


AMPLIFIER ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		SIDE PLATE (R) BLOCK		
21-1x	BZ436915	Side Plate (R) Block Comp.	MC	1
21-2	EZ436476	Side Plate(R)	MC-5013	1
21-3	BT437376	Power Trans. MCT-1	38-4-127	1
21-4x	ZW273914	Spring Washer M4		4
21-5	ZW413188	Nut M4		5
21-6x	WM454972	Trans. Damper Rubber	ED-B120	2
21-7	EZ436487	Trans. Shield Plate A	MC-5017	1
21-8	EZ436454	Trans. Shield Plate B	MC-5018	2
21-9	MZ431245	Trans. Shield Band	ED-B111	1
21-10	ZS468887	Screw, binding head 4x20		1
		AMP. FRAME BLOCK		
21-11	EZ540810	Amp. Frame B, w/prop	MC-5201	1
21-12x	EZ540821	Amp. Frame C, w/prop (Deck)	MC-5201	1
21-13	ES302040	Push SW. SDFIPBWO	25-5-19	1
21-14	ZS314368	UEH Mt. Screw	RC-588	2
21-15x	ZW273756	Nut M3		3
21-16	ES374051	Push SW. UEG-22CP	25-5-26	2
21-17	EZ424517	SW. Holder	MS-5006	2
21-18x	ZS375107	Screw, pan head 2.6x4		2
21-19	ZS323728	Screw, binding head 3x5		5
21-20x	EC380621	Mylar/C. 0.0068μF(J) 50WV (Vert. type)	24-1-1	2
21-21x	EC311793	Mylar/C. 0.012μF(J) 50WV (Vert. type)	24-1-1	2
21-22	ES436983	Lever SW. SDD2LCPO (LPS60112CPOO)	25-4-9	1
21-23x	ES445050	Lever SW. SDD4LCGO (LPS60122CG00) (WG)	25-4-10	1
21-24x	ER376413	Spark Quencher U/L 0.033μ+120 500WV	41-1-37	1
21-25x	ZS371856	ISO Screw, binding head 3x5		2
21-26	EV310972	Double/Vol. V24LDN 100kB+10kA	36-3-8	2
21-27x	EV411783	Vol. V24N 10kA (VJ10A) (Deck)	36-2-22	2
21-28	EJ369077	Lug Plate VBL1	33-4-7	1
21-29	EZ436768	Mic. Jack Table	MC-5005	1
21-30	EJ437310	Mic. Jack 2PMJ1P	31-2-37	2
21-31x	EZ225180	Nylon Collar, Jack	LD-520	2
21-32	ZW260368	Washer (Fiber) D9.2x18x0.5T	7-1-20	2
21-33	ZW391680	E Jack Nut		2
21-34x	ER213647	Carbon/R. RD1/4 10k(J) (Insu. type)	35-9-5	2
21-35	EJ437321	Jack, 3P Molded 3PMJ1P	31-2-38	1
21-36x	ZW376481	Jack Thin Washer D9.1x11.7x0.25t	DX-509	1
21-37	ZW555052	E Jack Nut		1
21-38x	ZW272722	Toothed Lock Washer M9 D9.3x13x0.5t		1
21-39	ZS447772	Tapping Screw #2 3x6(BR)		4
21-40	EM437332	VU Meter VS-6G	46-1-48	1
21-41x	EC220590	Elect./C. 33μF 10WV (Vert. type)	24-12-9	2
21-42	EA436735	PL P.C. Board	MC-5012	1
21-43	EL295312	Lamp (No.2) 8V 0.2A	28-2-8	2
21-44x	SE446556	Mask B	DF-6042	2
		BACK FRAME BLOCK		
21-45	EZ448031	Back Frame C	MC-5036	1
21-46x	EZ448020	Back Frame D (Deck)	MC-5036	1
21-47	EA339164	Power Transistor P.C. Board	RC-590	1
21-48	ET393614	Transistor 2SC1060(B) (C)	45-1-66	4
21-49	ZS437051	Screw, binding head 3x10, w/washer		4
21-50x	ZW273756	Nut M3		4
21-51x	ZW273802	Toothed Lock Washer M3		6
21-52x	ZW413256	Washer (SPC)D3.4x7.8x0.5t		4
21-53	EJ233370	Socket (Volt. Selector) S-18010	40-2-3	1
21-54x	ZS354532	ISO Screw, truss head 3x6		2
21-55x	EF563657	Fuse 3A 250V	39-1-50	1
21-56x	EF563703	Fuse 2A 250V (Deck)	39-1-50	1
21-57x	EF323616	Fuse ST-2 3A (AAL)	39-1-26	1
21-58x	EF277413	Fuse ST-2 2A (D-AAL)	39-1-26	1
21-59	EJ390914	Block Connector A Comp.	RC-545-A	1
21-60x	ER324641	Carbon/R. RD1/4 1k(J) (Insu. type)	35-9-5	2
21-61x	ER213873	Carbon/R. RD1/4 150k(J) (Insu. type)	35-9-5	2
21-62x	ER345756	Carbon/R. RD1/4 68k(J) (Insu. type)	35-9-5	2
21-63	EJ298607	Jack, 4P	31-1-10	1
21-64	EJ256533	Socket, Remote Control	31-1-29	1
21-65	EJ338005	Lug Plate KPL1	33-3-13	1
21-66	EJ393265	Jack, 2P E1	31-2-9	2
21-67x	EZ225180	Nylon Collar, Jack	LD-520	2
21-68	ZW437084	Washer (Fiber)D9.1x15.4x0.5t		2
21-69	EJ374578	E Jack Nut		2
21-70	EW540112	AC Cord (CUL) 2.5 M	26-3-19	1
21-71x	EW524845	AC Cord (J) 2.5M	26-3-31	1
21-72x	EW486797	Power Supply Cord (VDE) (WG)	26-3-26	1
21-73x	EW315448	Australia Cord (3 core)	26-3-11	1
21-74	EZ382263	Strain Relief SR-4K-4	2-7-12	1
21-75x	EZ246936	Strain Relief SR-6W-1 (WG, 3 core)	2-7-8	1

Ref. No.	Part. No.	Description	Schematic No.	Q'ty
	AMP. ASSEMBLY BLOCK			
21-76	EZ436465	Amp. Chassis A, w/bush	MC-5009	1
21-77x	EZ447232	Amp. Chassis D, w/bush, (Deck)	MC-5009	1
21-78x	ZW307765	Connector Nut (Prop L=21.8)	RC-581	2
21-79x	ZS323728	Screw, binding head 3x5		2
21-80	EC308068	Elect./C. 2200μF 35WV (Lug type)	24-10-40	1
21-81	ZS447772	Tapping Screw #2 3x6(BR)		9
21-82	EZ307980	Side Plate (L)	RC-564	1
21-83x	ZS308946	Mode Square Screw	RC-579	1
21-84	MH436511	Power Supply P.C. Board Prop	MC-5019	1
21-85x	EZ436522	Insulator Seat	MC-5015	1
21-86	EJ310871	Multi-jack (J-2) 18P 3250-018-001	31-4-11	1
21-87	EJ328320	Nylon Clip HP-5N	2-7-39	1
21-88	EJ336238	Pin Jack Pin	42-1-32	2
21-89	EJ299788	Plug 6P	42-1-21	1
21-90x	ZS417273	Screw, binding head 2.3x4		4
21-91	ZG309791	Main Amp. Spring, RC	RC-558	1
21-92x	ER324641	Carbon/R. RD1/4 1k(J) (Insu. type)	35-9-5	2
21-93x	ZG309780	Pre-amp. Spring, RC	RC-557	1
21-94x	ZS307945	Safety Screw	RC-596	1
21-95	EZ546873	Lamp Board B	MC-5213	1
21-96	EL295312	Lamp (No.2) 8V 0.2A	28-2-8	4
21-97	ZS322626	ISO Screw, binding head 3x8, w/washer		1
21-98x	ZG436555	Safety Spring, MC	MC-5014	1
21-99	ML307934	Safety Lever	RC-594	1
21-100x	ZW302332	Washer (BSP)D3.1x8x0.5t		1
21-101x	ZW273756	M3 Nut		1
21-102x	ZG308608	Button Spring (Cone)	RC-599	1
21-103	SB447467	Safety Button B	MC-5035	1
21-104x	ZW334653	'E' Ring 7M	6-1-9	1
21-105	MS436566	Safety Guide B	MC-5007	1
21-106x	ZS554927	Screw, countersunk head 2.3x5		1
21-107x	ZS499331	Screw, pan head 2.3x5		1
21-108	EZ308485	Pre Shield	RC-570	1
21-109	EZ305471	Card Retainer	RC-571	1
21-110x	EJ328320	Nylon Clip HP-5N	2-7-39	1
21-111	EJ450573	Mate-N-Lock Cap Housing 9P 1-480277-0	52-1-7	1
21-112x	HZ243191	Pin Contact 60511-1	52-1-1	9
21-113	SK540764	Card Knob	MC-5205	1
21-114	EZ309240	Lower Shield	RC-574	1
21-115	EZ294401	Collar 6x6, 1720	LCS-1	1
21-116	ZS455207	Tapping Screw #2 3x5(BR)		2
21-117x	MZ229138	Wire Bundle Holder N-108	2-35-1	1
21-118	SK436228	Knob A	MC-5010	3
21-119	SK436274	Knob B	MC-5011	1
21-120	SK436252	Knob B (SRT)	KF-2019	2
21-121	SK409498	Lever SW. Knob A	61-5027	2
21-122	EZ541045	Amp. Chassis Mt. Table A (R)	MC-5202	1
21-123	EZ541056	Amp. Chassis Mt. Table B (L)	MC-5202	1
21-124	ZS201767	Screw, pan head 4x6, w/washer		4

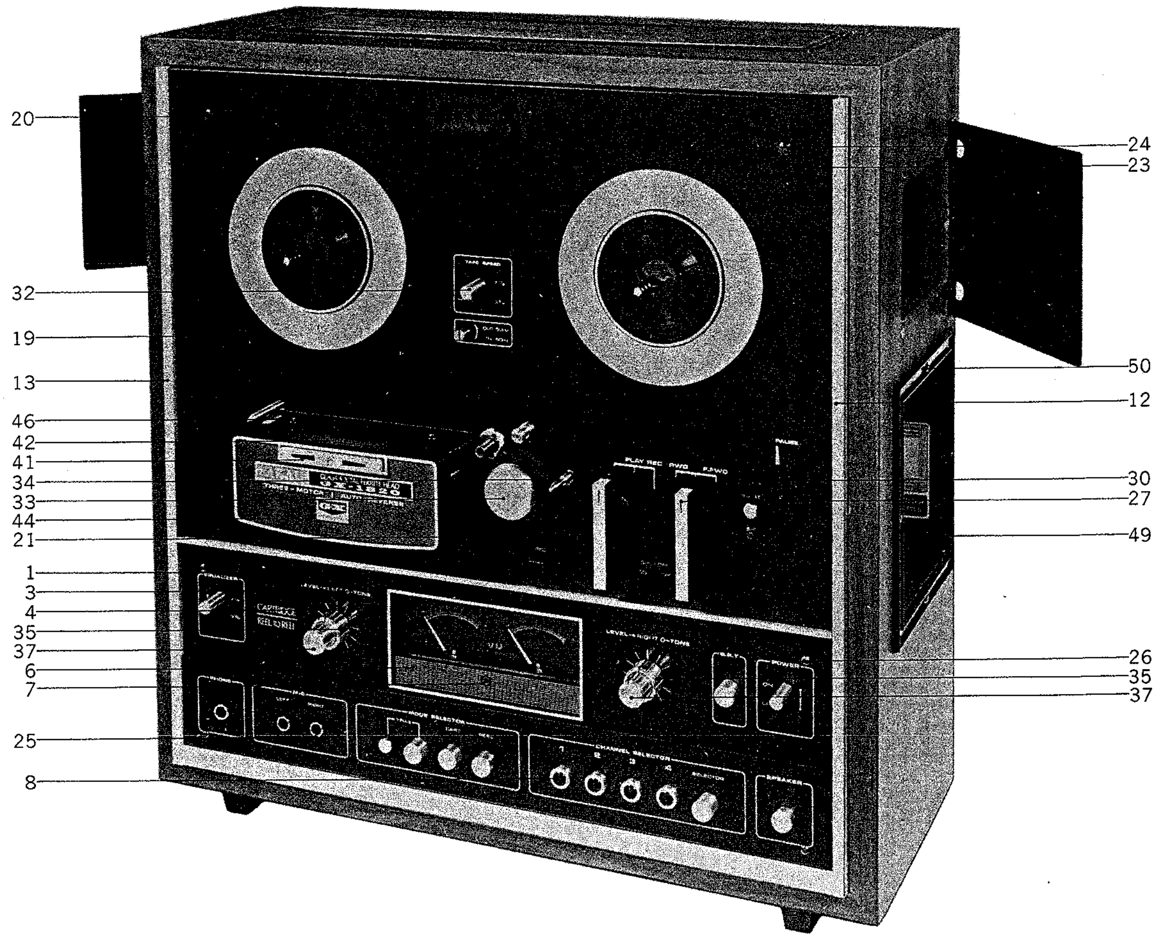
FIG. 22 PHOTO OF WOOD CASE BLOCK



WOOD CASE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
22-1	BC555243	Wood Case Block Comp.	MC-2	1
22-2x	BC555254	Wood Case Block Comp. (Deck)	MC-2	1
22-3	SA439593	Foot, DF	DF-6020	2
22-4x	ZS554771	Screw, pan head 4x20		4
22-5x	ZW439604	Washer (SPC)D4.2x9x0.5t		4
22-6	SE382217	Fan Grill	RD-A402	1
22-7x	ZS324448	Tapping Screw #1 3x10 (truss) (black)		3
22-8	SP535241	Ventilator A	TW-4002	1
22-9	SZ275591	Speaker Reflect Plate, RC	RC-405	2
22-10	SZ237475	Reflection Plate Cam	RC-421	2
22-11	SZ237508	Reflection Plate Retaining Parts (4)	3A-419	4
22-12x	ZW259503	Washer (Nylon)D3.1x8x0.5t		2
22-13x	ZW259514	Washer (Nylon)D3.1x8x1t		2
22-14	ZS201150	Screw, truss head 3x6 (black)		2
22-15	ZS437490	Screw, truss head 3x30		2
22-16	ZG410253	Angle Adjust Spring	RC-446	2
22-17x	ZW413256	Washer (SPC)D3.4x7.8x0.5t		10
22-18x	ZW273756	Nut M3		12
22-19	SS554782	Speaker 10T-1AP3	29-5-15	2
22-20	ER556615	Cement/R. 2W 12(K) (Wire-wound type)	35-16-1	2
22-21	EJ308981	Mold 4P Plug	42-1-22	1
22-22	SP540944	Back Panel A	MC-6007	1
22-23x	SP540955	Back Panel B (Deck)	MC-6007	1
22-24x	ZS392365	Tapping Screw #1 #6x12(truss)		4
22-25x	ZS553994	Tapping Screw #1 3x8(round)		6

FIG. 23 PHOTO OF FINAL ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK

AMP. PANEL BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
23-1	SP540922	Amp. panel A	MC-6209	1
23-2x	SP540933	Amp. Panel B (Deck)	MC-6209	1
23-3	SZ436094	Vol. Ring	MC-6004	2
23-4	SZ436105	Ring Plate	MC-6015	2
23-5x	SZ455084	Lamp Cushion	DF-5088	1
23-6	SE381508	Meter Escutcheon	RD-A613	1
23-7	ZS800278	Screw, oval countersunk head 2.3x4		1
23-8	SE497632	Lamp Escutcheon	DF-6025	4

FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
23-9x	ZS554760	Screw, truss head 4x30		4
23-10x	ZW259806	Washer (SPC-1)D4.5x12.8x1t		6
23-11x	ZS417150	Screw, pan head 4x6		8
23-12	SE540900	Sash (Left)	MC-6213	1
23-13	SE540911	Sash (Right)	MC-6213	1
23-14x	ZS447772	Tapping Screw #2 3x6(BR)		6
23-15x	ZS437422	Screw, truss head 4x15		2
23-16x	SA377190	Rubber Foot, LM	LM-404	4
23-17x	ZW419646	Washer (SPC)D4.5x9.8x0.5t		4
23-18x	ZS437433	Screw, truss head 4x25		4
23-19	SP541271	Mech. Panel, w/spin plate	MC-6201	1
23-20	SE528906	Counter Escutcheon	ND-6008	1
23-21	SC541078	Head Cover Base	MC-6203	1
23-22x	ZS323728	Screw, binding head 3x5		4
23-23	SZ483737	Panel Washer B	KD-6029	4
23-24	ZS482815	Screw, oval countersunk head 3x8 (black)		4
23-25	EZ436217	Collar, Jack	MC-5006	3
23-26	ZS447726	Screw, truss head 2.3x6, w/washer		4
23-27	SK410477	Mech. Knob B	LF-6034	2
23-28x	ZS253405	Mech. Knob Screw	7-1-46	2
23-29x	ZW432347	Washer (Luminar)D6.2x13x0.125t		2
23-30	SK314100	Pause Knob B	MR-612	1
23-31x	ZS433001	Set Screw, hexagon socket 3x5 (cup/p.)		1
23-32	SK409498	Lever SW. Knob A	61-5027	1
23-33	SK465197	Pinch Roller Cap	MC-6017	1
23-34	MP271170	Pinch Roller, LC D=38	LC-321	1
23-35	SK417622	Knob A-2, MC	VC-6018	2
23-36x	ZS356804	Set Screw, hexagon socket 3x4 (cup/p.)		2
23-37	SK417633	Knob B-2, MC	VC-6019	2
23-38x	ZS434160	Set Screw, hexagon socket 3x3(cup/p.)		2
23-39x	SK476111	Amp. Knob Comp. (Deck)	MR-6010	2
23-40x	ZW371913	Washer (Nylon)D7.1x13.6x0.5t		2
23-41	SK540832	DS Knob	MC-6206	2
23-42	SC540808	Head Cover	MC-6204	1
23-43x	EZ377583	Felt D9	CD-60	1
23-44	SM541326	Head Cover Name Plate GX-1820	MC-6205	1
23-45x	SM541282	Head Cover Name Plate GX-1820D	MC-6205	1
23-46	ZS201150	Screw, truss head 3x6 (black)		2
23-47x	SM542777	Serial No. Plate GX-1820	101053	1
23-48x	SM542788	Serial No. Plate GX-1820D	101053	1
23-49	SE436296	Cart. Escutcheon	MC-6009	1
23-50	ZS447963	Tapping Screw #1 3x10 (truss)		4
23-51x	EF563703	Fuse 2A 250V	39-1-50	1
23-52x	EF563681	Fuse 1A 250V (Deck)	39-1-50	1
23-53x	MY436307	Capstan, MC (15INCH)	MC-6010	1
23-54x	ZS436353	Capstan Set Screw, MC	MC-6012	1
23-55x	MP436364	Pinch Roller, MC 15INCH D=32	MC-6014	1
23-56x	EF394773	Fuse 2A 250V	39-1-39	1
23-57x	EF563657	Fuse 3A 250V	39-1-50	1
23-58x	EF323616	Fuse ST-2 3A (AAL)	39-1-26	1
23-59x	EF563703	Fuse 2A 250V (Deck)	39-1-50	1
23-60x	EF563681	Fuse 1A 250V (Deck)	39-1-50	1
23-61x	EF277413	Fuse ST-2 2A (D-AAL)	39-1-26	1
23-62x	EF304626	Fuse ST-4 1A (D-AAL)	39-1-28	1

INDEX

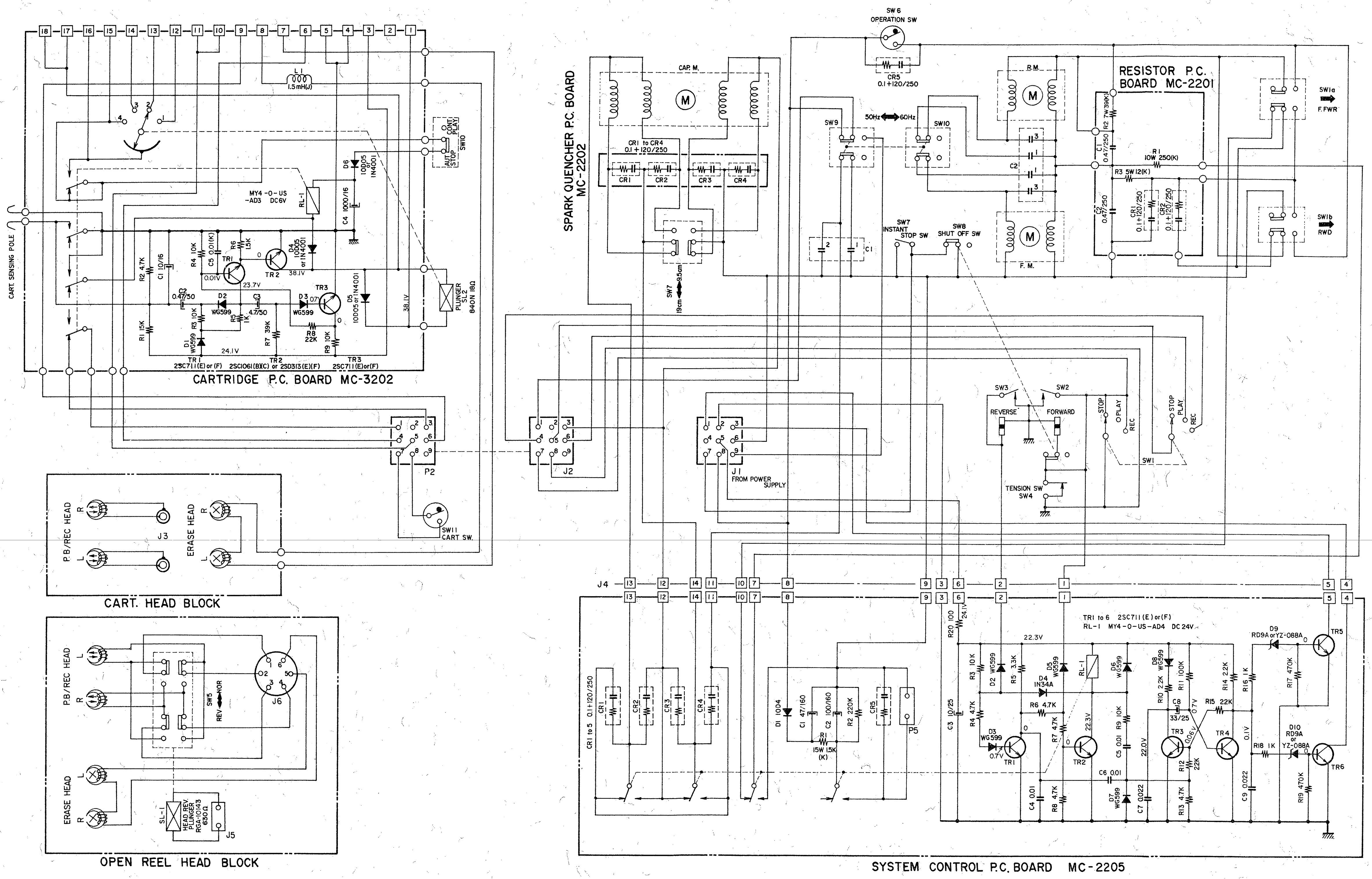
Parts No.	Ref. No. & Symbol No.
BA309701	17-1x
BA309723	19-1x
BA447041	16-1x
BA555377	11-1x
BA555388	10-1x
BA555412	2-6
BA555412	9-1x
BA555423	12-1x
BA555491	14-1x
BA555502	13-1x
BA555513	13-2x
BA555568	15-1x
BA555636	18-1x
BA555647	20-1x
BA555658	20-2x
BC555243	22-1
BC555254	22-2x
BF436961	5-1x
BH555390	1-1x
BH555401	2-1x
BL304997	6-36x
BL309690	8-1x
BL316484	7-141
BL555344	4-11x
BM314741	3-1
BM555355	4-1
BR317395	3-2x
BR448110	3-3x
BS432393	7-119
BS447502	7-120x
BT247746	16-T1,2
BT329117	19-T1
BT437376	21-3
BZ248027	7-13x
BZ314820	7-1x
BZ436915	21-1x
BZ437793	5-6
BZ555366	7-20x
EA339164	21-47
EA436735	21-42
EA463206	1-50
EC220105	19-C10
EC220364	20-C10
EC220364	20-C13
EC220421	9-C4
EC220421	19-C6
EC220590	16-C1,2
EC220590	20-C4
EC220590	21-41x
EC220612	12-C8
EC220994	12-C3
EC220994	20-C12
EC243988	18-L1
EC250604	19-C1,2
EC250683	20-C11
EC250841	14-C2,3
EC250885	9-C5
EC250885	12-C4,5,6
EC250885	17-C1
EC250975	15-C2,5
EC250975	18-C5
EC251087	12-C7
EC251087	12-C9
EC251087	19-C3
EC251155	17-C3
EC290564	19-C4
EC308068	21-80
EC311793	21-21x
EC316091	12-C2
EC316113	12-C1
EC320051	9-C1
EC320051	18-C2
EC320051	19-C8
EC320051	20-C6
EC320051	20-C13
EC329850	20-C2
EC331738	9-C3
EC331817	19-C9
EC331828	18-C3
EC336115	13-C3
EC336126	14-C1
EC336194	18-C4
EC336216	20-C9
EC336216	20-C14
EC338488	17-C2
EC339063	19-C5
EC339096	19-C7
EC350987	11-C1,2
EC368335	20-C15
EC379157	18-C6
EC380621	21-20x
EC389485	18-C7,8
EC399690	20-C16
EC399734	18-C1
EC423562	20-C3
EC432810	20-C1
EC439097	14-C5
EC446242	14-C4
EC450055	20-C8
EC450281	9-C2
EC476965	20-C7
EC517138	20-C5
EC520626	7-68
EC554804	7-66
EC557651	13-C1,2
EC561025	14-TC1,2
ED219464	12-D4
ED219464	16-D1,2
ED219464	17-D1,2
ED224526	13-D1,2
ED224550	12-D1
ED324551	19-TH1,2
ED329130	13-D3
ED384096	12-D9,10
ED494583	9-D4
ED511097	9-D5,6
ED511918	13-D4
ED514721	9-D1,2,3
ED514721	12-D2,3
ED514721	12-D5 to 8
EF277413	21-58x
EF277413	23-61x
EF304626	23-62x
EF323616	21-57x
EF323616	23-58x
EF394773	23-56x
EF563657	21-55x
EF563657	23-57x
EF563681	23-52x
EF563681	23-60x
EF563703	21-56x
EF563703	23-51x
EF563703	23-59x
EJ205986	7-128x
EJ229353	6-21x
EJ229353	7-151x
EJ229353	12-2x
EJ233370	21-53
EJ243191	7-155x
EJ243191	9-2x
EJ256533	21-64
EJ293084	18-J1
EJ295953	2-63
EJ298607	21-63
EJ299788	21-89
EJ300508	6-20x
EJ300508	7-150
EJ308981	22-21
EJ310847	17-J1
EJ310871	21-86
EJ315101	7-59
EJ328320	21-87
EJ328320	21-110x
EJ336238	21-88
EJ338005	21-65
EJ365703	1-32
EJ368785	6-19x
EJ368785	7-149x
EJ369077	21-28
EJ374578	21-69
EJ390914	21-59
EJ393265	21-66
EJ437310	21-30
EJ437321	21-35
EJ450573	7-154
EJ450573	9-P2
EJ450573	21-111
EJ452340	1-72
EJ452351	12-P5
EJ554951	1-73x
EL295312	21-43
EL295312	21-96
EM437332	21-40
EO243988	20-L1
EO244012	18-L2
EO369178	9-L1
EO453521	14-T1
EP303614	9-RL1
EP318115	1-14
EP344136	12-RL1
EP369685	2-21
ER211320	9-R6
ER211320	20-R14
ER211465	9-R5
ER211465	12-R16
ER211465	12-R18
ER211465	16-R3,4
ER211465	18-R6
ER211667	12-R20
ER211667	20-R12
ER211757	12-R11
ER211757	20-R1,2
ER211757	20-R7
ER212264	9-R8
ER212264	12-R12
ER212264	12-R15
ER212264	18-R1,2
ER212264	20-R8
ER212477	12-R5
ER212477	20-R4
ER212681	17-R3
ER212681	20-R5
ER212681	20-R15
ER212883	9-R2
ER212883	12-R4
ER212883	12-R6,7,8
ER212883	12-R13
ER212883	13-R3
ER212883	14-R5
ER212883	20-R16
ER213120	19-R14
ER213647	18-R3
ER213647	21-34x
ER213873	21-61x
ER304290	19-R17
ER304402	14-R4
ER304402	17-R8
ER304402	20-R11
ER306360	17-R6
ER306360	19-R15
ER306843	16-R1,2
ER306843	17-R5
ER306887	9-R1
ER306887	17-R4
ER306887	18-R7
ER306887	20-R10
ER315944	14-R2,3
ER324641	21-60x
ER324641	21-92x
ER324764	17-R7
ER336442	9-R3,4
ER336442	9-R9
ER336442	12-R3
ER336442	12-R9
ER336442	18-R3
ER336442	18-R4
ER336442	19-R6,7
ER336442	20-R9
ER338940	19-R2,3
ER343078	18-R11
ER345756	21-62x
ER346601	19-R5
ER346601	20-R6
ER349907	19-R4
ER350100	18-R9
ER350100	20-R13
ER357412	19-R16
ER357456	12-R10
ER357456	12-R14
ER357456	18-R12
ER357456	18-R14
ER357535	9-R7
ER357535	18-R10
ER361642	13-R4
ER362272	18-R13
ER362441	19-R8,9
ER376413	21-24x
ER376435	7-127
ER376435	10-CR1 to 4
ER376435	11-CR1,2
ER376435	12-CR1 to 5
ER379473	20-R17
ER380711	12-R2
ER399060	18-R8
ER399644	13-R5,6
ER399644	19-R12,13
ER413717	13-R2
ER429794	19-R10,11
ER429996	12-R17
ER429996	12-R19
ER450011	18-R5
ER514912	19-R1
ER554850	11-R1
ER554872	11-R2
ER554894	11-R3
ER555017	13-R1
ER555028	14-R1
ER555660	20-R3
ER556503	12-R1
ER556615	22-20
ES227902	2-69
ES227902	9-SW10
ES250020	2-11
ES302040	21-13
ES302207	18-SW1
ES307877	17-SW1
ES316923	6-2
ES317744	1-33
ES374051	21-16
ES436983	21-22
ES437501	6-5
ES438535	7-124
ES445050	12-23x
ES447175	18-SW6
ES457514	15-SW4
ES479485	6-17
ES479485	6-22x
ES479485	7-122
ES479485	7-152
ES554837	7-25
ET234753	18-TR1
ET234832	20-TR1 to 4
ET304255	14-TR1,2
ET329218	19-TR1
ET338894	19-TR2
ET375603	9-TR2
ET393614	21-48
ET453486	9-TR1
ET453486	9-TR3
ET453486	12-TR1 to 6
ET476886	13-TR1
EV310972	21-26
EV338916	19-VR1,2
EV411783	21-27x
EV497698	20-VR1
EV498060	18-VR1,2
EW315448	21-73x
EW486797	21-72x
EW524845	21-71x
EW540112	21-70
EZ207314	7-92x
EZ225180	21-31x
EZ225180	21-67x
EZ246936	21-75x
EZ294401	21-115
EZ305087	8-3
EZ305471	21-109
EZ307361	18-2
EZ307980	21-82
EZ308002	17-2
EZ308485	21-108
EZ309240	21-114
EZ309262	8-4
EZ309273	8-2
EZ310814	17-5
EZ377583	23-43x
EZ382263	21-74
EZ397124	7-50
EZ413695	13-4
EZ424517	21-17
EZ436217	23-25
EZ436454	21-8
EZ436465	8-8
EZ436465	21-76
EZ436476	21-2
EZ436487	21-7
EZ436522	21-85x
EZ436645	13-3
EZ436768	21-29
EZ447232	8-9x
EZ447232	21-77x
EZ448020	21-46x
EZ448031	21-45
EZ540810	21-11
EZ540821	21-12x
EZ541045	21-122
EZ541056	21-123
EZ546873	21-95
EZ549167	6-23x
EZ549167	7-153
HE224122	2-50
HE563220	1-37
HL246813	2-17
HL317676	1-17
HL541157	1-69
HL541168	1-67
HL542687	1-68
HP258265	2-42
HP462554	1-49
HZ218272	2-30
HZ218327	2-36
HZ218362	2-19
HZ222658	2-5x
HZ223920	2-37
HZ224166	2-49
HZ225213	2-7
HZ225573	2-13
HZ229026	2-38
HZ231862	2-27
HZ231917	2-28
HZ243191	2-12x
HZ243191	21-112x
HZ248073	2-2
HZ253620	2-55
HZ258030	2-59
HZ258456	2-41
HZ275567	2-40
HZ298012	1-42
HZ303750	2-44
HZ315077	7-116
HZ315090	7-117
HZ317092	1-86
HZ317597	1-3
HZ317632	1-26
HZ317687	1-18
HZ317698	1-11
HZ317700	1-12
HZ317733	1-31
HZ318036	1-76
HZ318047	1-75

SECTION 3

SCHEMATIC DIAGRAM

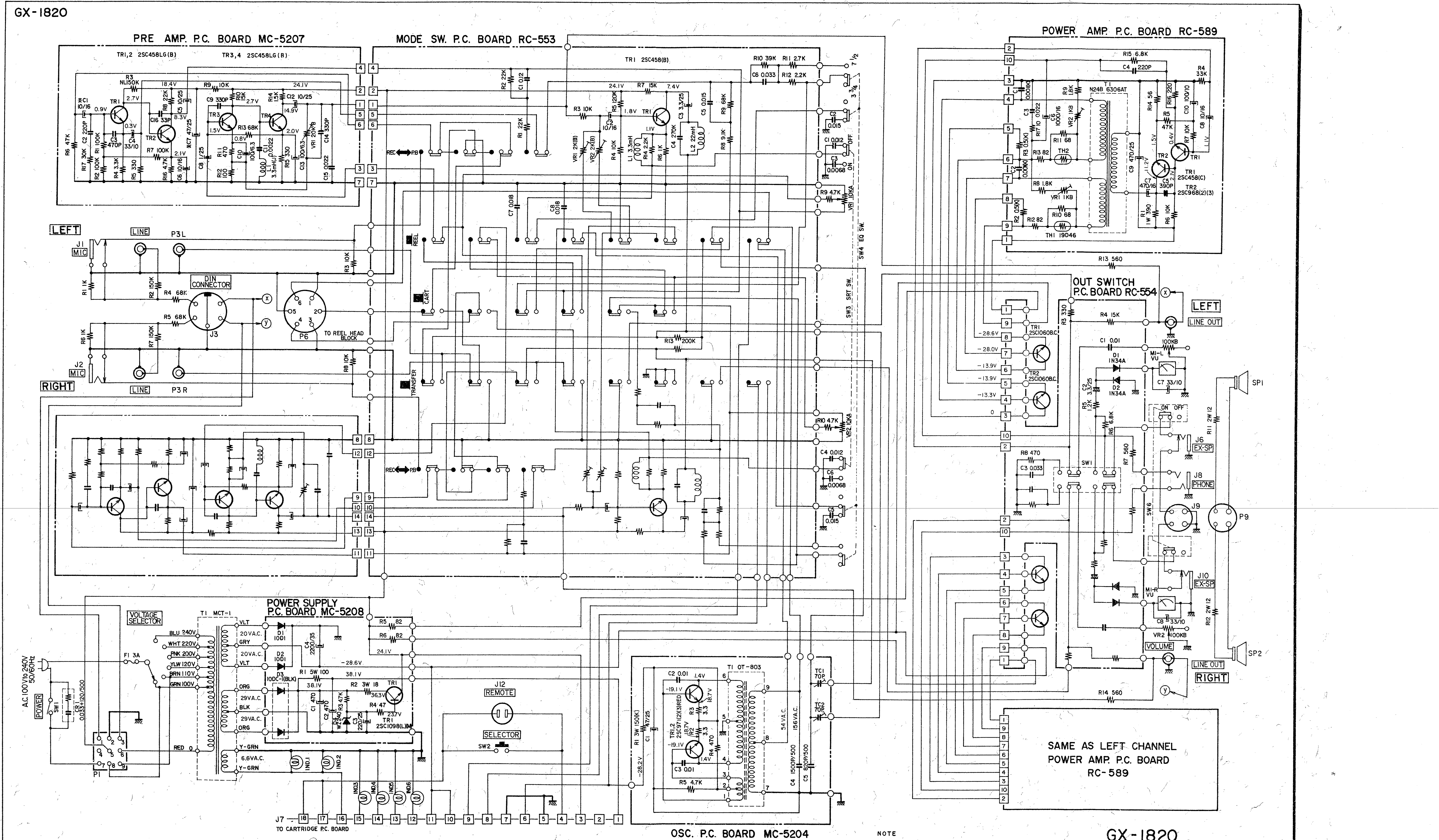
1. GX-1820 SCHEMATIC DIAGRAM
2. GX-1820D SCHEMATIC DIAGRAM

GX-1820/D


CARTRIDGE P.C. BOARD MC-3202
CART SENSING POLE
L1 1.5mH(J)
MY4-O-US -AD3 DC6V
RL-1
D6 10D05 or 1N4001
C4 1000/16
AUTO STOP
CONT PLAY
SW10
TR1
TR2
TR3
D4 10D05 or 1N4001
D5 10D05 or 1N4001
PLUNGER SL2 840N 18Ω
TR1 2SC711(E) or (F)
TR2 2SC1061(B)(C) or 2SD313(E)(F)
TR3 2SC711(E) or (F)
P2
SW11 CART SW.
CART. HEAD BLOCK
P.B/REC HEAD
ERASE HEAD
J3
OPEN REEL HEAD BLOCK
SW5
NOR
REV
J6
SL-1
HEAD REV PLUNGER RGA-1043 630Ω
J5
SPARK QUENCHER P.C. BOARD MC-2202
CAP. M.
CR1 to CR4 0.1+120/250
CR1
CR2
CR3
CR4
SW7
19cm
9.5cm
SW6 OPERATION SW
CR5 0.1+120/250
SW9
SW10
50Hz
60Hz
R.M.
F.M.
RESISTOR P.C. BOARD MC-2201
R1 10W 250(K)
R2 7W 390(K)
R3 5W 12(K)
SW1a F.FWR
SW1b RWD
SW7 INSTANT STOP SW
SW8 SHUT OFF SW
J2
J1 FROM POWER SUPPLY
SW3
SW2
REVERSE
FORWARD
STOP
PLAY
REC
SW1
TENSION SW SW4
J4
P5
CR1 to 5 0.1+120/250
R1 15W 1.5K (K)
SYSTEM CONTROL P.C. BOARD MC-2205
TR1 to 6 2SC711(E) or (F)
RL-1 MY4-O-US-AD4 DC 24V
D9 RD9A or YZ-088A
D10 RD9A or YZ-088A
TR4
TR5
TR6

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTOR IN Ω 1/4W (J)
ALL CAPACITORS IN μF 50W.V.(J)

GX-1820/D
SCHEMATIC DIAGRAM
NO.3-1 1461802A
2C

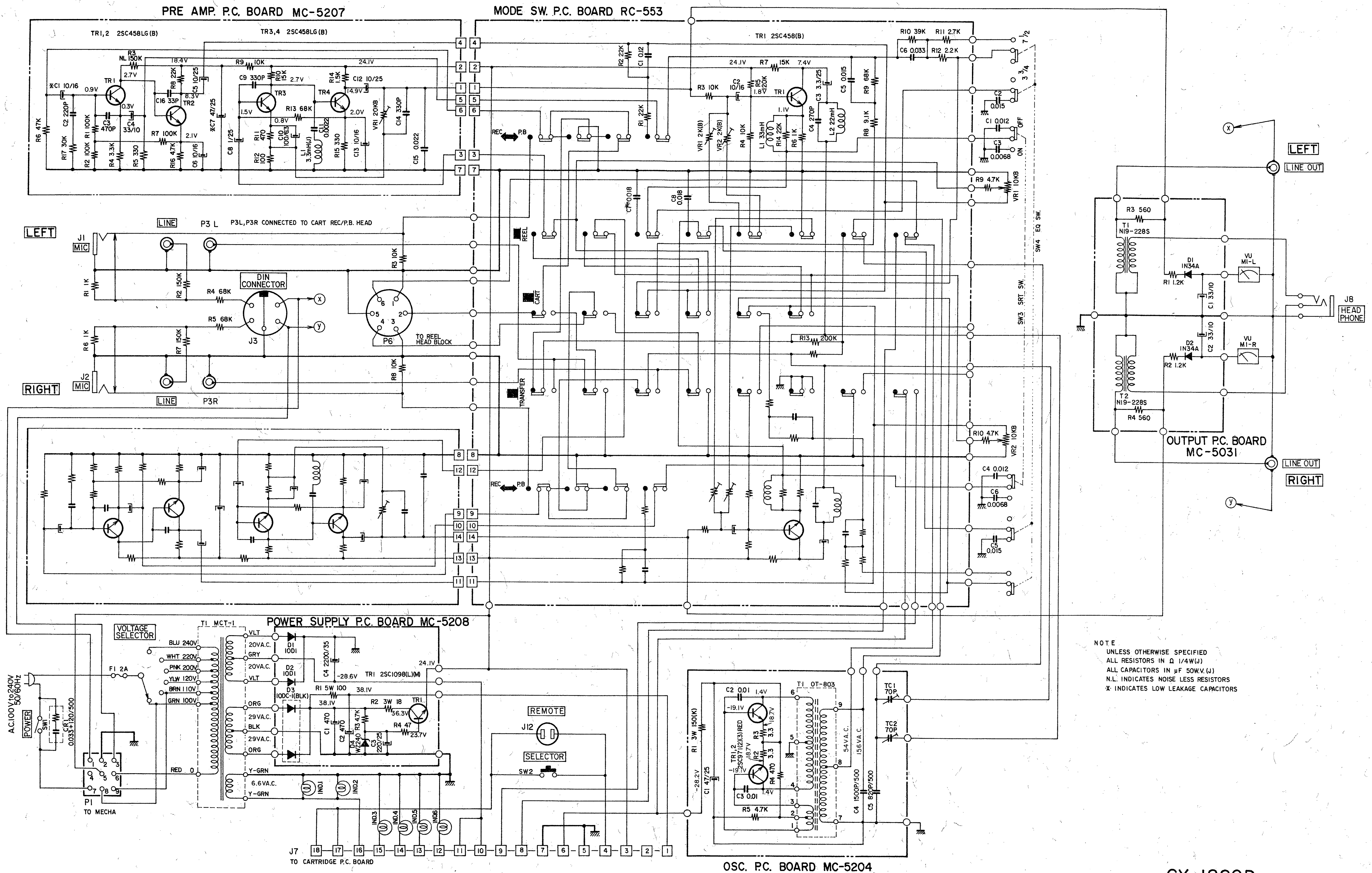

GX-1820
PRE AMP. P.C. BOARD MC-5207
TR1,2 2SC458LG(B)
TR3,4 2SC458LG(B)
MODE SW. P.C. BOARD RC-553
TR1 2SC458(B)
POWER AMP. P.C. BOARD RC-589
TR1 2SC458(C)
TR2 2SC968(2)(3)
N248 6306AT
OUT SWITCH P.C. BOARD RC-554
TR1 2SC1060B.C.
TR2 2SC1060B.C.
LEFT
RIGHT
LINE
MIC
J1
J2
P3L
P3R
DIN CONNECTOR
J3
P6
TO REEL HEAD BLOCK
REC
PB
REEL
CART
TRANSFER
SW3 SRT SW.
SW4 EQ SW.
LINE OUT
MI-L VU
MI-R VU
J6 EX-SP
J8 PHONE
J9
J10 EX-SP
P9
SP1
SP2
VOLUME
SW1
SW6
ON OFF
VOLTAGE SELECTOR
A.C. 100V to 240V 50/60Hz
POWER
F1 3A
P1
POWER SUPPLY P.C. BOARD MC-5208
T1 MCT-1
TR1 2SC1098(L)
J12 REMOTE
SELECTOR
SW2
IND.1
IND.2
IND.3
IND.4
IND.5
IND.6
J7
TO CARTRIDGE P.C. BOARD
OSC. P.C. BOARD MC-5204
T1 OT-803
TR1,2 2SC971(2)(3)(RED)
SAME AS LEFT CHANNEL POWER AMP. P.C. BOARD RC-589

NOTE

UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN Ω 1/4W(J)
ALL CAPACITORS IN μF 50W.V.(J)
N.L. INDICATES NOISE LESS RESISTORS
※ INDICATES LOW LEAKAGE CAPACITORS

GX-1820
SCHEMATIC DIAGRAM
NO.3-2 1461803A
2C

GX-1820D


PRE AMP. P.C. BOARD MC-5207
TR1,2 2SC458LG(B)
TR3,4 2SC458LG(B)
MODE SW. P.C. BOARD RC-553
TR1 2SC458(B)
LEFT
LINE
P3 L
P3L,P3R CONNECTED TO CART REC/P.B. HEAD
J1
MIC
DIN CONNECTOR
J3
P6
TO REEL HEAD BLOCK
RIGHT
J2
MIC
LINE
P3R
REC
P.B
REEL
CART
TRANSFER
SW3 SRT SW.
SW4 EQ SW.
7 1/2
3 3/4
OFF
ON
LEFT
LINE OUT
T1 N19-228S
T2 N19-228S
D1 IN34A
D2 IN34A
VU MI-L
VU MI-R
J8
HEAD PHONE
OUTPUT P.C. BOARD MC-5031
LINE OUT
RIGHT
POWER SUPPLY P.C. BOARD MC-5208
VOLTAGE SELECTOR
T1 MCT-1
BLU 240V
WHT 220V
PNK 200V
YLW 120V
BRN 110V
GRN 100V
RED
A.C.100V to 240V 50/60Hz
POWER
SW1
F1 2A
P1
TO MECHA
TR1 2SC1098(L)(M)
REMOTE
J12
SELECTOR
SW2
J7
TO CARTRIDGE P.C. BOARD
OSC. P.C. BOARD MC-5204
T1 OT-803
TR1,2 2SK97(1)(2)(3) RED
TC1 70P
TC2 70P
54V A.C.
156V A.C.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN Ω 1/4W(J)
ALL CAPACITORS IN μF 50W.V.(J)
N.L. INDICATES NOISE LESS RESISTORS
※ INDICATES LOW LEAKAGE CAPACITORS

GX-1820D
SCHEMATIC DIAGRAM
NO.3-3 1461804A
2C